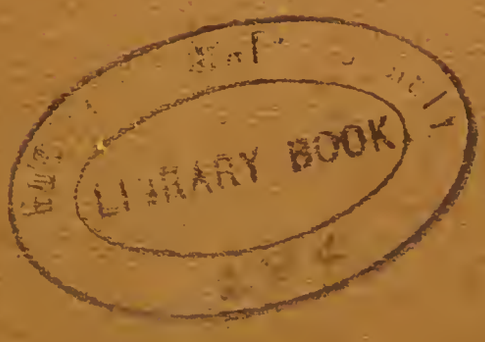
AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY



SECOND ANNUAL MEETING

CHICAGO, ILL.

1911

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American Association

FOR

Study and Prevention

OF

Infant Mortality

TRANSACTIONS

OF THE

Second Annual Meeting

Chicago, Illinois

November, 16-18, 1911

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1910-1911

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*Deceased

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1910-1911

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Chairman

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Education

Chairman

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Chairman

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Dr. Caroline Hedger
Dr. Henry F. Helmholz
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1911-1912

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Dr. Mary Sherwood
Dr. Cressy L. Wilbur

Executive Secretary

Miss Gertrude B. Knipp
Medical and Chirurgical Faculty Building
1211 Cathedral Street
Baltimore, Md.

Acknowledgment is hereby made to the Chicago Association of Commerce for its generous contribution toward the cost of printing this report.

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SECOND ANNUAL MEETING

of the

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

The second annual meeting of the American Association for Study and Prevention of Infant Mortality was held at the Hotel La Salle, Chicago, November 16, 17, and 18, 1911, under the presidency of Prof. Charles Richmond Henderson, of the University of Chicago. Provision was made for two popular meetings, two general sessions of the Association, and six section meetings.

POPULAR MEETINGS

Addresses were made at the popular meetings, as follows:

Thursday night, November 16:

Introductory. Prof. Chas. R. Henderson, University of Chicago.

"Municipal Measures Against Infant Mortality in Chicago," by George B. Young, M. D., Commissioner of Health, Chicago.

"The Illegitimate Child," Dr. Hastings H. Hart, Director, Department of Child Helping, Russell Sage Foundation, New York.

Friday night, November 17:

"The Present Status of Infant Welfare Work in the United States," Dr. J. W. Schereschewsky, U. S. Public Health and Marine Hospital Service, Washington.

"Prevention of Infant Mortality. One Aspect of the New Humanitarianism," Jane Addams, Chicago. (Not submitted for publication.)

"The Public in the Reduction of Infant Mortality," Dr. H. J. Gerstenberger, Medical Director of the Babies' Dispensary and Hospital, Director of Bureau of Child Hygiene, Board of Health, Cleveland.

"Town Cows," Dr. W. A. Evans, Chicago. (Not submitted for publication.)

GENERAL SESSIONS

Friday afternoon, November 17:

Report of the Committee on Birth Registration. Dr. W. R. Batt, State Registrar of Vital Statistics, Harrisburg, Pa., Chairman.

(See page 55 for Report and Resolutions adopted by the Association.)

Report on the Third International Congress for the Study and Prevention of Infant Mortality, Berlin, Germany, September 11-15, 1911, by Dr. Henry L. Coit, Newark, N. J. See page 60.

Reports of Findings of Sections on Eugenics, Housing, Nursing and Social Work, and Resolutions adopted by these sections.

See pages 114, 148, 282.

Saturday morning, November 18:

Report: "Special Methods in Great Britain." Miss Ellen C. Babbitt, Russell Sage Foundation, New York. See page 64.

Reports of Findings and Resolutions from Sections on City Milk Supply, Midwifery and Continuation Schools.

See pages 256, 163, 72.

SECTION MEETINGS

Section meetings were held as follows:

Eugenics. Prof. H. E. Jordan, University of Virginia, Charlottesville, Va., Chairman.

Midwifery. Dr. Mary Sherwood, Baltimore, Chairman.

Nursing and Social Work. Miss M. Adelaide Nutting, Columbia University, N. Y., Chairman.

Continuation Schools of Home-Making. Dr. Helen C. Putnam, Providence, Chairman.

Housing. Mr. Lawrence Veiller, New York, Chairman.

City Milk Supply. Prof. E. O. Jordan, University of Chicago, Chairman.

The Board of Directors held two meetings, the first on Friday morning, November 17, and the second on Saturday morning, November 18. The former was preceded by a meeting of the Executive Committee. The following committees were appointed by the President:

Nominations—

Dr. H. J. Gerstenberger, Cleveland, *Chairman*
Miss S. P. Breckenridge, Chicago
Dr. J. L. Huntington, Boston
Dr. J. F. Edwards, Pittsburgh

Resolutions—

Dr. Joseph S. Neff, Philadelphia, *Chairman*
Dr. Hastings H. Hart, New York
Dr. Guy L. Kiefer, Detroit

Transactions—

Dr. John S. Fulton, Baltimore, *Chairman*
Dr. L. E. La Fetra, New York
Dr. F. S. Churchill, Chicago
Miss Gertrude B. Knipp, Baltimore

Traveling Exhibition—
Dr. J. W. Schereschewsky, Washington, *Chairman*

BUSINESS MEETINGS OF THE ASSOCIATION

Business sessions were held in connection with the general sessions of Friday afternoon and Saturday morning. At the former, on motion of Dr. H. J. Gerstenberger, of Cleveland, seconded by Dr. J. M. Howell, of Dayton, and carried by the Association, it was decided to increase the directorate from fifty to sixty.

The following directors, whose terms of office had expired, were unanimously re-elected for terms of five years:

Dr. Henry L. Coit, Newark, N. J.
Mr. Homer Folks, New York
Dr. L. Emmett Holt, New York
Prof. C.-E. A. Winslow, New York

The following new directors were unanimously elected for the periods indicated:

FIVE YEARS

Dr. John Howland, St. Louis
Mr. Sherman C. Kingsley, Chicago
Dr. Henry F. Helmholz, Chicago
Dr. I. A. Abt, Chicago
Dr. Fritz Talbot, Boston
Dr. J. W. Schereschewsky, Washington
Mr. Arthur D. Baldwin, Cleveland
Prof. H. E. Jordan, University of Virginia

FOUR YEARS

Dr. J. Whitridge Williams, Baltimore
Dr. T. B. Cooley, Detroit

THREE YEARS

Dr. F. W. Schlutz, Minneapolis
Dr. C. E. Ford, Cleveland
Dr. H. B. Burns, Pittsburgh

TWO YEARS

Dr. Herman Schwarz, New York
Mrs. Wm. Lowell Putnam, Boston

ONE YEAR

Dr. Guy L. Kiefer, Detroit
Mr. Wilbur C. Phillips, Milwaukee
Mrs. S. S. Crockett, Nashville

At their meeting held Saturday morning, November 18, the Board of Directors elected

Dr. L. Emmett Holt, of New York City, President for 1912-1913.

At the same time the Board declared

Dr. Cressy L. Wilbur, of Washington, the President-elect, President for 1911-1912.

The Board then elected the following other officers for 1911 1912:

First Vice-President, Dr. Joseph S. Neff, Philadelphia.
Second Vice-President, Mr. Charles A. Otis, Cleveland.
Secretary, Dr. H. J. Gerstenberger, 2500 East 35th St., Cleveland.
Treasurer, Mr. Austin McLanahan, care Alex. Brown & Sons, Baltimore.

The Board of Directors elected the following Executive Committee:

Mr. Arthur D. Baldwin
Dr. Wilmer R. Batt
Dr. H. J. Gerstenberger
Dr. J. H. Mason Knox, Jr.
Dr. Joseph S. Neff
Dr. Mary Sherwood
Dr. Cressy L. Wilbur

At the closing business session of the Association, the following resolution, presented by Dr. Gerstenberger and seconded by Dr. Goler, was adopted by the Association:

Resolved, "Inasmuch as great confusion has been and is being caused by the distribution of educational pamphlets and leaflets for the various organizations throughout the United States, and inasmuch as it seems today very feasible that the various authorities in the United States be induced to agree to a uniform public expression of the fundamentals of infant feeding and hygiene, and inasmuch as such a movement would aid in having more unity and understanding among the workers and the public, I hereby desire to request the appointment by the Chairman, at any time suitable to him, of a committee to draw up such a booklet and pamphlet during the coming year and present it at the next annual meeting for acceptance or rejection."

The Chair appointed the following committee:

Dr. H. J. Gerstenberger, Cleveland, *Chairman*
Dr. John Howland, St. Louis
Dr. Fritz B. Talbot, Boston
Dr. Henry F. Helmholz, Chicago
Dr. J. H. Mason Knox, Jr., Baltimore
Dr. J. P. Sedgwick, Minneapolis

The following resolutions were reported favorably by the Committee on Resolutions and were unanimously adopted by the Association:

**Resolved*, That the American Association for Study and Prevention of Infant Mortality memorialize Congress to furnish a eugenic

*This resolution was referred by the incoming Executive Committee to the Committee on Exhibition.

child welfare and social hygiene exhibit at the Panama Exhibition in San Francisco in 1915. (From the Section on Eugenics.)

Resolved, That the thanks of the Association be extended to the Local Committee for the admirable arrangements for the meeting and in conjunction with the Infant Welfare Society of Chicago for their hospitality and courtesy in conducting the members of the Association to the various stations under their control.

Resolved, That the thanks of the Association be extended to the Health Department of Chicago for the attractive and educative exhibit illustrating the care of infants and the prevention of infant mortality as practised in Chicago.

Resolved, That the Association hereby acknowledges its indebtedness to the Executive Secretary for her continued intelligent and devoted work whereby the accomplishments of the year were made possible.

The Chairman announced that fifty-five societies had become affiliated with the Association during the year; that thirty had sent representatives to the meetings; and that thiryfive had sent reports, the majority of which would be summarized in the Transactions. (See page 368.)

At the close of the business meeting the Chairman introduced Dr. Cressy L. Wilbur, the incoming president, who outlined the plans for 1912. (See address page 21.)

REPORT OF THE EXECUTIVE SECRETARY

NEW UNDERTAKINGS STIMULATED

Some of the results of the last two years' educational propaganda are to be seen in the formation of infant mortality committees in Birmingham, Alabama, under the direction of the Associated Charities; in New Orleans, under one of our directors, Dr. Butterworth; in Minneapolis, and in St. Paul, through the activity of some of our members. Money is badly needed to carry on this educational work. The newer undertakings can contribute very little, if any, toward the support of the national association. Their local financial burdens are too heavy, as a rule, to admit of their contributing to other activities, and the expense of the educational campaigns has to be financed out of the general funds of the Association.

MEMBERSHIP

The Association closes its second year with a membership of 525. Thirty-four States, the District of Columbia, Canada, England and Scotland are represented in the enrollment. One life member joined during the year, making the total number to date four. There were 14 sustaining members and 55 affiliated societies.

AFFILIATED SOCIETIES

The affiliated societies have been a constant source of strength. Through their co-operation it has been possible in a number of instances to place the experience of the earlier workers, at the service of beginners in this field .

An instance of particularly effective co-operation is to be found in the relations of the Maryland Society for the Prevention of Blindness with our own Association. Through a grant, amounting to a little over $200, made by the Society for the Prevention of Blindness, the Association's Committee on Midwifery was enabled to make an investigation of midwifery conditions in one of the counties of Maryland. The investigation was carried on entirely under the direction of the committee, but all expenses were paid by the Society for Prevention of Blindness, and the item therefor does not appear in our financial statement.

EXHIBITION

The exhibition held in connection with the Baltimore meeting created a demand for other popular exhibitions, illustrative of the extent, causes, and means of reducing infant mortality. At the close of the exhibition a small and incomplete collection of pictures and charts became the property of the Association. Though this collection is very crude and imperfect, it has formed the nucleus of a number of important local exhibitions. These have included one arranged at Albany, by Dr. H. L. K. Shaw; one held at Norfolk under the direction of Dr. L. T. Royster; a public health exhibit and a neighborhood center exhibit during the winter at Baltimore, the former under the Medical and Chirurgical Faculty, the latter under the Federated Charities. Late in the summer the collection was sent to Toronto, where it formed part of the Public Health Section of the Canadian National Exhibition. On its return from Toronto the collection was shipped in response to a hurry call to Kansas City. In each instance the exhibitions referred to were arranged or inspired by some member of the Association.

A great opportunity is opening in the South for a traveling exhibit, as soon as the Association can afford to invest the money necessary for this purpose. A well-equipped exhibit would cost about $1,500. In view of the urgent demand, I hope the Board of Directors will take some steps toward making the exhibit a certainty.

PUBLICITY

The office has supplied material during the year to newspaper writers, to contributors to magazines, and to others engaged in the study of some particular phase of infant mortality. News notes have been sent to the Journal of the American Medical Association, The Survey, and other periodicals. A number of despatches have been sent to the Associated Press, and others have been sent to local papers.

SPECIAL ACTIVITY AMONG NURSES' ASSOCIATIONS

Largely through the activity and influence of Miss Nutting, one of our directors, a number of nurses' associations have identified themselves with the Association and have joined ranks in furthering the movement.

At its meeting last spring the American Society of Superintendents of Training Schools for Nurses adopted resolutions recommending co-operation with our Association in every way possible. The Superintendents recommended further, that provision be made in the courses offered in the nurses' training schools, for adequate training in the care of infants, and for instruction as to the extent of infant mortality, its causes, and the means of reducing it.

The activity of the nurses has opened the way for special membership campaigns among them. There has also been special correspondence with clubwomen in the general Federation of Women's Clubs. There is reason to believe that our propaganda is responsible for the attention given to infant mortality in the health program recently announced by the Federation for the current year.

BIRTH REGISTRATION

Steady effort has been made to arouse interest in the importance of birth registration. A reprint of the report of last year's committee on Birth Registration was sent with a letter of invitation to join the Association to Health Commissioners of all cities of 25,000 or more population; and to Secretaries, Presidents and Registrars of Vital Statistics of all State Boards of Health. It is hoped that a more aggres-

sive campaign can be carried on along this line during the coming year.

The name of the Association is becoming known in other parts of the world. A recent illustration of this was shown in a request forwarded by the Exchange Division of the Smithsonian Institution from the Department of Health of Queensland, for a copy of the Transactions of the Baltimore meeting.

*The 1911 enrollment is distributed as follows:

Alabama	1
California	14
Colorado	5
Connecticut	17
District of Columbia	11
Georgia	1
Illinois	105
Indiana	3
Iowa	2
Kansas	2
Kentucky	7
Louisiana	3
Maine	3
Maryland	105
Massachusetts	29
Michigan	13
Minnesota	8
Missouri	9
Nebraska	1
New Jersey	15
New York	81
North Carolina	1
Ohio	41
Oklahoma	1
Pennsylvania	61
Rhode Island	7
South Carolina	1
South Dakota	1
Tennessee	1
Utah	5
Vermont	2
Virginia	5
Washington	3
West Virginia	1
Wisconsin	6
Philippine Islands	1
Canada	9
England	1
Scotland	1
Total	584

In connection with the membership and educational campaigns 13,375 pieces of mail have been sent out. This has included 2,865 personal letters, 4,826 circular letters and over 30,000 circulars.

November 15th, 1911.

Respectfully submitted,
GERTRUDE B. KNIPP,
Executive Secretary.

* NOTE—Actual paid-up membership at close of fiscal year, November 15, 1911, was 525. The above list includes 1911 members whose dues were paid during the Chicago meeting (Nov. 16-18).

REPORT OF THE TREASURER

November 16th, 1910 to November 15th, 1911

Receipts:—			
Balance on hand November 16, 1910:			
Contributions and membership dues	$1,015 86		
Baltimore Meeting Exhibition Fund	759 00		
		$1,774 86	
Exhibition Fund (received after close of Baltimore Meeting)		465 00	
Membership dues, total		2,279 40	
Contributions		1,817 50	
Transactions (sale of)		99 20	
Interest		17 28	
			$6,453 24
Expenditures:—			
Exhibition in connection with 1910 Meeting		$1,105 17	
Rent		150 00	
Salaries		2,080 00	
Clerical help		206 01	
Executive office		425 00	
Furniture		99 25	
Office supplies		46 62	
Telephone		33 65	
Exhibition (traveling)		127 03	
Printing and stationery:			
General	$695 44		
Printing Transactions Baltimore Meeting	744 95		
		1,440 39	
Postage:			
General	$257 45		
Transactions to members	21 60		
		279 05	
Expressage: Transactions to members		29 28	
Miscellaneous		158 36	
			6,179 81
Balance on hand November 15, 1911			$273 43

AUSTIN MCLANAHAN,
Treasurer.

EXECUTIVE OFFICE ACCOUNT

November 16th, 1910 to November 15th, 1911

DR.

Balance, November 15, 1911	$ 8 19	
Received from the Treasurer to November 15, 1911	425 00	
Refund excess express charges	12	
		$433 31

CR.

By expenditures for—		
Postage and stationery	$160 94	
Clerical help	43 30	
Office supplies	15 05	
Rental of typewriter	10 00	
Books, etc	83	
Multigraphing and typewriting	41 20	
Expressage and telegrams	25 21	
Miscellaneous, carfare, janitor service	69 47	
Clipping service	4 00	
Exhibition	62 82	
		$432 82
Balance on hand November 15, 1911		$ 49

GERTRUDE B. KNIPP,
Executive Secretary.

*ADDRESS BY THE PRESIDENT FOR 1911

CHARLES RICHMOND HENDERSON, Ph. D., University of Chicago

This Association has sounded a rallying cry for all patriotic citizens to unite all forces in defense of helpless infancy which is menaced by countless foes. Philanthropists, clubs of women, universities, municipal administrations, State and Federal governments are summoned to the field of battle for the future citizens around whose cradles a life and death conflict wages. We are not soliciting funds for a new society, but for the oldest of all. The mother-infant group was the primary social group; it is still more fundamental than the Supreme Court or The Hague Tribunal.

The mother has a moral right to a decent home nest for her brood; and all the powers of State and city authorities are called on to regulate the building and maintenance of the residences of the people. Girls and women, present or prospective mothers, are employed in factories, shops and stores under conditions of wages, hours and physical surroundings which make sound motherhood impossible. The Consumers' Leagues, the Association for Labor Legislation and the legislators are asked by us to concentrate attention and effort upon this point. The accidents, diseases and deaths of occupations imperil the income of mothers; and social insurance laws, equal to those of the most advanced European States, must be helped over the obstacles of ignorance, neglect, tradition and negative judicial decisions by the constructive genius of the legal profession. Even constitutions will be found at last consistent with security of regular income to support mothers. The lawyers and judges must bear the chief responsibility for many unjust and killing burdens which now crush mothers; and we summon them to help us develop a constructive policy worthy of a modern nation.

Insurance funds, and not mere charitable relief, must provide for expectant mothers, for the crisis of confinement and for a period of convalescence, when family income is insufficient. The educational institutions, the teaching profession are challenged to provide for the education of youth in matters of sex and the duties of parents, so that the reproduction

*Introductory address, opening session.

and rearing of children shall not be left to ignorance, chance and passion. Maternity hospitals, asylums for mothers and children and consultations must become veritable schools of mothers.

Similarly the baby's legal rights must be recognized with clearer consciousness. The infant has a right to its mother's breast, to the father's name and support. The illegitimate and abandoned baby must find in the father-mother State a refuge and protector when all else fails. Private and church charity may be recognized and welcomed by the State, but government alone is the final source and support of legal rights. The baby has a right to be registered among citizens on its arrival and to have a continuous legal record thereafter. When the natural guardian is weak, wicked or incompetent, the parental State should furnish a central public guardianship which will guarantee all the rights the child possesses. When competent medical commissions have decided, by legal process, that a girl or woman can be a mother of only feeble-minded and crippled children, she should be sent to a colony of celibates and kept in comfort, at useful occupations, without danger of increasing the stock of paupers, criminals and prostitutes. We have a section on Eugenics.

Auxiliary agencies are to be centrally and effectually organized: the day nurseries to aid working mothers, the infant hospitals for sick children and clinical observation, the district nurses' associations, the household visitors, and all the other agencies of enlightened philanthropy.

The principle of the pure food law is to be applied not only to the food of adults, but also to milk, the food of little children.

The education of the Nation in its duty to the baby is our mission. We invite the help of newspapers, libraries, churches, in this patriotic and sacred task. The end is not merely to increase the number of our population, already vast, but especially to improve its quality, energy, efficiency, by giving to every infant born a chance to have a right start.

The Third Annual Meeting of the American Association for Study and Prevention of Infant Mortality will be held in Cleveland, October 2-5, 1912.

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*GREETINGS BY THE PRESIDENT FOR 1912

CRESSY L. WILBUR, M. D., Washington, D. C.

I need not say that the distinguished honor which was conferred upon me at the last meeting of the Association was one far beyond, and of course not intended as a recognition of, any personal deserts. In that sense it would have been utterly overwhelming for I recognize fully the serious limitations under which I labor and the much greater availability of many other active workers in the various fields of prevention of infantile mortality. On behalf of the Bureau of the Census, however, and in furtherance of the resolution of this Association, adopted as the first formal resolution at its first annual meeting, to make the accurate registration of births and deaths and the *study* of infantile mortality a fundamental part of the movement represented by this organization, I cannot do otherwise than accept the responsibility and, with your aid and counsel, seek to discharge the duties of the position to the best of my ability.

The Association is itself an infant, measured by the mere duration of its formal existence. This is only its second birthday, but it has now completed the first two years of life in which the mortality of babies—and associations—is vastly high. Under the wise and enthusiastic leadership of the first president, Dr. J. H. Mason Knox, and of my immediate predecessor, Professor Henderson, the scope of its activities has already been defined to a very considerable extent. The plans for the present conference, as formulated by Dr. Henderson last year, have proved successful, and I most cordially recommend a continuance in the same general outline of procedure for the ensuing year. As the leaders in the various sections included in the organization become more familiar with the membership, the special problems proposed, and the correlations with the other sections, I trust that a fine spirit of cooperation and personal helpfulness will develop, which is one of the most important benefits resulting from such a national organization as ours.

*Installation address, closing session.

A very impressive feature of the vital statistics of the present day is the remarkable reduction that has occurred among most civilized nations in the birth rates, death rates and rates of infantile mortality. This is especially noticeable in urban statistics. According to the tables published in the Annual Summary of the Registrar-General of England the mean percentages of reduction for a considerable number of the great cities of the world between the quinquennial periods 1881-1885 and 1906-1910 are for birth rates 25 per cent., death rates 35 per cent. and infantile mortality 30 per cent. The rate of infantile mortality is based upon the comparison of the deaths of infants under one year of age with the number of children born alive, hence, for the United States, we are unable to learn the exact condition or to compare our statistics with those of foreign countries on account of the lack of complete registration of deaths and more particularly of births.

The registration area for deaths embraced an estimated population of 53,843,896 for the year 1910, or 58.3 per cent. of the total population of continental United States. Accessions are made to this area from time to time, the latest being that of the State of Missouri for the year 1911, based upon the introduction and enforcement of what is known as the "model law" for the registration of vital statistics. This law has been forcefully advocated by the American Medical Association, and the success attained has been largely due to the earnest efforts of the organized medical profession. There is prospect of improved legislation in several states, especially those of the South, at the next sessions of their legislatures.

Even where the model law has been adopted, however, the enforcement of the requirements of birth registration is extremely difficult. I hope that the active efforts of this Association may be devoted during the coming year to the building up of public sentiment that will insist upon the thorough execution of the laws for birth registration. These laws are for the protection of the legal and personal interests of helpless children and are absolutely necessary for the purposes of an aggressive campaign against preventable infant mortality. Health officers and registration officials, I believe, are in earnest in their desires to enforce such laws, but it is practically impossible to do so unless they are supported and urged to their duty by the pressure of an enlightened public sentiment.

In this connection may be noted what appears to be one of the most helpful and encouraging signs of progress, namely, the inclusion of a special program devoted to infant mortality in

the outline of the studies of the Public Health Department of the General Federation of Women's Clubs for May, 1912. Very properly this begins with (1) the relation of vital statistics to infant mortality, then proceeds to the consideration of (2) the chief causes of infant mortality, (3) how to interest and educate the mothers, (4) what every mother ought to know, (5) reports on local milk supply, and (6) reports on local institutions. I hope the members of this Association may be able to co-operate actively in this program, and suggest as the two most important fields of work for the ensuing year local investigations, with full publicity as to the exact conditions and the causes therefor, of—

1. Registration of births.
2. Condition of milk supplied to infants.

It is the right of parents of children to know whether the laws that provide for the registration of births are being enforced or not. The presumption, in the United States, is that they are not enforced, and hence all the statistics based upon their results are more or less worthless. Health reports and bulletins may well call attention to the number of cases of violation of the law that are discovered and the measures taken to secure complete returns. For example, the report of the Health Department of the District of Columbia for the week ended November 4, 1911, says: "Of the 16 deaths reported of infants under 1 year of age, all being natives of this District, the births of 11 have been found duly recorded. One case has not been identified, and in the remaining four no evidence of returns of births was found. These cases have been placed in the hands of the Department's inspectors for investigation as to who is responsible for the violation of the law relating to the reporting of births. Of the cases previously under investigation, two only remain unsettled."

The excellent Pennsylvania law continues to be enforced. That State is the only one in which violations of law have been prosecuted systematically and State inspectors have been employed to insure the uniform and thorough administration of the birth registration law over the entire State. As a result many thousands of births have been registered that would ordinarily have escaped registration. The New York City Health Department has already taken energetic action to secure complete registration of births. In the Monthly Bulletin for February, 1911, it was stated that "In insisting on the strict compliance with Section 159 of the Sanitary Code, requiring the reporting of births within ten days, the Depart-

ment of Health, from October 27, 1910, to February 7, 1911, has prosecuted 50 actions in the Municipal Court, in 44 of which the Department has been successful in having a fine imposed. At the present writing there are 58 additional cases pending. Before this recent activity, only two such cases have been prosecuted by the Department since 1905."

The New York State Department of Health has also begun a vigorous effort for the more complete registration of births throughout the State. The law has been amended so that births are no longer required to be registered—that is, a complete certificate of birth filed within 36 hours, but the more practicable limit of three days is imposed. Phyisicians and midwives may, of course, file certificates within 36 hours after birth, and if unable to do so a special report upon a "notification" card must be made within that limit. The latter is more especially for the purpose of giving timely information to the health authorities as to the use of preventives against ophthalmia neonatorum, but it would seem that the system of prompt notifications, if thoroughly enforced, would aid in the completeness of registration. A circular letter issued by Dr. Eugene H. Porter, State Commissioner of Health, under date of July 10, 1911, states that "The time for leniency has passed. * * * Personal feelings on the part of physicians or those whose duty it is to see that the laws are obeyed, must be set aside. *It may as well be known now that the law must be obeyed, and that proper steps for its enforcement will be taken hereafter as violations of the law occur.*" When this spirit prevails more largely—and the time is ripe for it—we shall no longer have "vital statistics" of which we are ashamed and which we hesitate to use, and the work of this Association and all other sanitary agencies will be greatly advanced.

I hoped to have available for distribution at this conference the Annual Bulletin on Mortality Statistics, 1910. It is now in press and will very soon be ready, however, when copies can be obtained upon application to the Director of the Census. It shows with much greater detail than usual the ages at death of infants dying under two years of age and the most important causes of death. Out of the total number of deaths that occurred in the registration area at all ages, 805,412, no less than 187,453 or over 23 per cent. were those of infants under 2 years of age, and 154,373 or over 19 per cent. were those of infants in the first year of life. The deaths are given by days for the first week, weeks for the first month, and months for the first two years of life. As usual, diarrhea and enteritis was by far the most important cause of death for

infants under 1 year of age, being responsible for 44,695 deaths or nearly 29 per cent. Other important causes of death during the first year of life were premature birth (20,275, of which over four-fifths, 16,197, occurred during the first week), congenital debility (15,361), and bronchopneumonia (10,593). The prevention of infant mortality must take into account prenatal as well as postnatal causes, and must nourish and guard the prospective mothers so that their children shall not be prematurely born or succumb during the first few days or weeks of life. Undoubtedly congenital weakness is an important contributory factor to the mortality from infectious and other diseases later on. Breast-feeding must be encouraged, and active measures should be planned early in the year—while the subject of infant mortality is under discussion by the General Federation of Women's Clubs in May would be the most favorable time—to prevent as much as possible of the rise in the mortality from diarrheal diseases of infants. Of the 54,266 deaths of infants under 2 years of age from diarrhea and enteritis in 1910; 25,100 were in the months of July and August, nearly equally divided between them, and 8,364 in September.

*ADDRESS

MUNICIPAL MEASURES AGAINST INFANT MORTALITY IN CHICAGO

By GEORGE B. YOUNG, M. D., Commissioner of Health, Chicago

If I confined myself to a mere enumeration, or even mere discussion, of what has really been done in the way of municipal measures against infant mortality in Chicago, I would not take up more than a very few minutes of your time, but I am going to venture to supplement the statement of what has actually been done by a statement of what we hope to do in the near future, or, rather, what we think ought to be done and what we hope to make a beginning on in the near future.

For the sake of being systematic, I will enumerate in sequential order the various things which appear to be most vitally necessary in order to secure any considerable decrease in the unnecessary infant mortality of this city, even though I must confess that most of the headings will have to be filled in by a statement of aspirations rather than of achievements.

To begin with, we feel that we ought to, so to speak, begin before the beginning, and take such control of the midwife as will insure to the infant an introduction to the world under the care of competent hands. Perhaps it would be only fair to say that it is possible something can be done for the physician as well as the midwife, for unquestionably too many men are licensed to practice medicine and to assume charge of confinement cases who are entirely without the sort of training and experience properly to fit them for that responsibility, but the question of a doctor's fitness not belonging, perhaps, within the scope of this discussion, I will confine it to the midwife.

It is hardly necessary to tell such a body as this what should be done in the way of training and licensing midwives. I regret to say that in Chicago at the present time practically nothing can be done with the midwife situation, nothing, that is, through municipal agencies, for lack of the necessary authority and means. I say authority and means because, even without the specific authority, if we had a little more money we might find a way to do something about the midwife situation.

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*Opening session, Thursday, November 16, 1911.

We feel that the arriving infant should have his vision protected by compulsory use of the nitrate of silver drops. I regret to say that at present there is absolutely no authority for requiring this, and no way that I can see of making any legislation on the subject effective until something can be done to improve the situation in regard to the next requisite of which I have to speak. This is the registration of births.

The city ordinance provides for a birth registration by the Health Department, and formerly there was a partial registration. It is doubtful, I think, from what I can hear, if it ever really amounted to more than a considerable fraction of what it was supposed to cover. The State law provides for registration by the County Clerk and authorizes the payment of a fee of twenty-five cents for each birth registered. As the city had no means, or, at least, as the Health Department had no means of paying for the city, the registration was turned over several years ago to the County Clerk. Unfortunately, the Board of County Commissioners has never seen fit to appropriate the money with which to pay the registration fee, and it is doubtful, at the present time, if more than half the births are registered. The Health Department hopes to be able to improve the situation somewhat in the near future, but what is really needed is the passage of the vital statistics law which failed before the last legislature. If we had a real registration of births we could pass an ordinance requiring the use of the nitrate of silver drops in the eyes of the new born, and compel the report of such use along with the report of the birth. Until we get this, we will have to stand idly by and see these hundreds of innocent children deprived of their sight unnecessarily. Of course, this does not bear directly upon the question of the reduction of infant mortality, but as it has a very distant connection with the subject, I mention it.

The next thing, perhaps, is to provide for the mothers and for the children, who among the poor play such an important part in the care of the babies, some instruction in the elements of the hygiene of the infant, in the methods of the preparation of infant's food, bathing, clothing, and the like. The city Health Department, by means of its nurses, does considerable along these lines, as I will explain in a moment, in connection with the description of the summer work, and the Department has recently inaugurated a work which I feel confident will do a great deal towards providing the instruction.

Following the example of New York, we made a beginning

last summer with so-called "Little Mothers' Schools." You are all doubtless familiar with the splendid work which has been done in New York along these lines, and it is unnecessary to go into any description of it. In Chicago we made a beginning during the last summer by opening three such schools in connection with settlement house work. We began in this way in order that we might get some practical experience in the management of such an enterprise, and because, the regular schools not being open and the settlements being directly in touch with the class of young girls we wished to reach, they offered the best opportunity for the initial experiment. We are now completing our plans to open, in co-operation with the school department, a "Little Mothers' School" in forty-eight of the schools in the more congested districts, and I hope that within a month we will have them all under way. Judging by the New York experience, these schools should prove very potent factors in the spreading of the knowledge upon which, after all, we really must count for the most part if we are to make a decided improvement in the infant mortality situation.

As, no matter how well the non-nursing mothers may be instructed, they can do very little to help themselves and their babies unless they have access to a reliable milk supply, the milk situation naturally assumes very great importance. Our milk situation in Chicago has been very much complicated by an Act of the last Illinois Legislature which made it unlawful for any municipality to require the tuberculin testing of dairy cattle. It is well known that this was a purely political measure, and it is very difficult to speak with any degree of patience of the individuals who, for political reasons, were willing to jeopardize the lives of the thousands of helpless babies in Chicago. It may not be amiss to say that the attitude of some of these gentlemen was very clearly shown by a statement made by the leader of the movement to the Chicago Milk Commission about six months before the passage of the bill. He stated that he was not opposed to making proper provision for the protection of the milk supply of Chicago, and it was very unjust to say such a thing about him. He said: "I am in favor of doing everything that can be done for the protection of the consumer in Chicago that is not inconsistent with the interest of the producer."

The city ordinance requires the pasteurization of all milk that is not from tuberculin tested cattle. The tuberculin testing of cattle having been forbidden, we are compelled to re-

quire the pasteurization of all the milk. A good many of the dealers, however, were not equipped to pasteurize, having drawn their supply from tested cattle and a good many others have in various ways evaded the provision of the ordinance, so that, at the present time, about seventeen per cent. of our entire milk supply is neither from tuberculin tested cattle nor is it pasteurized. The Department has inaugurated an active campaign to correct this state of affairs, and also to do what is quite as important, to try to put out of business the people who are nominally complying with the pasteurization provision, but who really conduct the process in such a way as to render it of very doubtful value.

There is no provision in the city ordinance requiring that milk shall be brought into the city at any particular temperature, and, consequently, in the summer months it is correspondingly difficult for the smaller dealers to get their milk under conditions which favor its keeping well. My predecessor in office, Dr. Evans, made a very earnest effort to have this matter corrected by the passage of an ordinance regulating the temperature at which milk should be brought into the city, but there immediately developed a very curious situation. Some of the same railroads who found it possible to comply with such an ordinance in other cities said it was impossible to do so in the case of Chicago.

The Department expects to have an ordinance on this subject introduced very shortly, and if it succeeds in securing its passage and is at all successful in its attempts to improve the pasteurizing situation, the supply of good milk at reasonable prices for the use of infants should be reasonably well assured.

In the matter of providing pure milk at cost or approximately cost, as is done by milk depots under municipal supervision in some cities, Chicago as yet has done nothing at all. When we compare this with the fifty-odd municipally conducted stations which the Health Department of New York will have during the coming year, our position is certainly not creditable, and it must be admitted that from present prospects there will be no improvement in our present situation until the finances of the city are placed upon a more satisfactory basis.

So much for what we do or do not do, or do only in part or inefficiently.

What we have really done and are going ahead with is this: We have made a beginning in the sort of intensive work in the congested districts during the summer season that prom-

ises to be of great value. The beginning of this dates back several years, but the first really considerable extension took place during the past summer. The Department having been provided with the means of employing fifty summer nurses and of procuring a very large increase in the amount of miscellaneous supplies necessary for such a campaign, united with the various agencies interested in the work of reducing infant mortality and made such arrangements as would insure effective co-operation.

The principal agencies co-operating with the Department included the United Charities, the County Agent, the Visiting Nurse Association, the Infant Welfare Society, the McCormick Memorial Fund, the Civic Federation of Chicago, the Women's Clubs, and a very large number of similar organizations.

In previous summers there had been more or less duplication of effort, more or less overlapping of jurisdiction, and, as a result, unfortunately, occasional friction between the representatives in the field of the various agencies engaged.

A committee to represent the principal agencies associated in the work was formed and such arrangements made as would insure more systematic conduct of the work as a whole, certain agencies, for example, undertaking to provide cheap ice boxes, others to provide ice, others to provide milk and others to maintain the tent hospitals, others to operate and extend the scope of the dispensaries for babies, while the work specifically assigned to the Health Department was to find the children needing attention, send them to or bring to them the necessary assistance, medical or otherwise, and follow up the babies discharged from the tents or under treatment in the dispensaries. This work was carried on to some extent in twenty of the thirty-five wards of the city, but intensively in only ten, and not as intensively even there as we should like to have had it. There is no possible question but that the summer work as a whole was more effectively and economically conducted during the last summer than ever before, and as long as the city does not provide the necessary means to handle every phase of the subject as it should be handled, such a scheme of co-operation as we had during the past summer offers the very best solution of our difficulties.

I will not undertake to go into the details of the manner in which the work was carried on, as it was principally along the well-established lines of such work. Some figures may, however, be of interest.

TOTAL SUMMARY OF NURSES' REPORTS

July—August—September, 1911

Total calls	38,335
Wrong addresses	574
Moved	1,497
Babies dead	369
Revisits	20,041
Breast fed	13,861
Artificially fed	5,477
Diarrhoea	2,470
Marasmus	183
Sore eyes	226
Pneumonia	86
Other sickness	878
Sent to tent	693
Sent to V. N. A.	145
Sent to I. W. S.	94
Sent to Hospital	140
Sent to Dispensary	401
Doctors obtained	868
Supplies	381
Sanitary complaints	359
Miscellaneous calls	1,589

WARDS HAVING NURSING SERVICE

2	16
4	17
5	19
8	22
9	24
10	27
11	28
12	29
14	30
15	333

WARDS WHERE NO NURSING SERVICE WAS RENDERED

1	21
3	23
6	25
7	26
13	31
18	34
20	35

WARDS WHERE INTENSIVE NURSING WAS DEMONSTRATED

5	17
8	19
9	22
12	29
16	33

The results certainly were very satisfactory. The net reduction in the deaths under two years of age for the months of July, August and September was 362, as compared with the figures for the previous summer. Of this decrease, 311 occurred in the wards covered by the nurse service. Of course, I am aware that this past summer, in spite of the heat, seems to have been a good summer for babies, and that the infantile rate in the country generally seems to have been lower than in the previous summer. It is a striking fact, however, that the decrease in the death rate in the congested wards where intensive work was done was 21.4 per cent and in the better class of wards where the nurse service was considered less urgent the figure was 15.5 per cent.

In addition to the nurse service, the Department carried on an active campaign of education by means of posters and leaflets in English and the foreign languages generally spoken in the congested districts, and to some extent by lectures.

In addition, as referred to before, we started three "Little Mothers' Schools" for the instruction of young girls in the preparation of baby food and in the hygiene of infants generally. We also inaugurated a mothers' conference once a week in the most congested part of the Italian quarter, and after some difficulty in overcoming the natural suspicion of the people, we succeeded in making this a very useful agency for the instruction of the mothers.

The Department had formerly made very extensive use of the nickel picture shows for educational purposes, and during the past summer we had three representatives constantly employed in going from show to show all over the city, especially in the congested districts, exhibiting films of an educational nature. Of course, these films were not entirely in relation to the infant work, but they were so in part, and as a whole served to arouse interest in the other educational activities which did specifically refer to infant work. One film which was prepared under the supervision of the Department showed in considerable detail the work of the municipal nurses in instructing parents as to feeding and caring for children, taking them to dispensaries and tent hospitals, etc. This aroused a great deal of interest and probably was the means of doing considerable good by bringing home to the thousands of patrons of the picture shows the necessity for the work the Department was trying to do and the method by which it was being done.

Our appropriation did not admit of keeping up this work as a whole for more than the three summer months, but we

have carried on some work to a limited extent in the worst wards during the rest of the season, and if we succeed in getting the necessary appropriation we intend to make a very considerable expansion of the work during the next season.

So while it is true that we have scarcely more than made a beginning in Chicago in the great undertaking of reducing the number of unnecessary infantile deaths, we have made a beginning, and the widely aroused public sentiment on the subject and the interest which has been shown by the people of the city generally and the support which has been given by the press will inevitably lead in the near future, I am sure, to such a development of our work as will be not only a credit to the city, which is perhaps not very important, but a real boon to suffering humanity, which, after all, is the only thing that counts.

* ADDRESS

THE ILLEGITIMATE CHILD

A Life Saving Problem

By HASTINGS H. HART, L. L. D., Director Department of Child-Helping, Russell Sage Foundation

In order that The Illegitimate Child may share the benefits of the present movement for the prevention of infant mortality, the following program is suggested:

First. That in every city above 50,000 population there be organized a branch of the Association for the Study and Prevention of Infant Mortality, with a wide-awake physician, preferably a pediatrist, as president; an ornamental board of directors composed of men and women of good standing, and a small, well-chosen executive committee, which should include the City Health Officer, a woman physician, a woman representing a social settlement, a man who is a social worker and a business man who can reach the purse strings of the community.

This executive committee should promote the measures here proposed, should finance the movement as far as necessary, should undertake an efficient publicity campaign and should work for the co-operation of all of the agencies involved.

Second. A systematic campaign should be undertaken with expectant mothers who are unmarried.

a. A law should be secured requiring physicians in general practice, superintendents, matrons or nurses of general hospitals, lying-in hospitals, homes for young women, boarding-house keepers, etc., to report every mother of an illegitimate child to the Board of Health as soon as her condition becomes known. The only exception to this rule should be young women residing with parents or relatives who are ready to assume responsibility for them and to give them adequate care.

b. It should be made lawful for the expectant mother to assume a fictitious name for the purpose of registration and

*Opening session, November 16, 1911.

report (as Mrs. Mary Smith, Mrs. Alice Brown, etc.), in order not to expose her identity; provided that the same name shall be used as long as she is a subject of public record and shall not be changed except to resume her own name.

c. Provide by law that every Board of Health in cities of 50,000 population or more shall appoint visiting nurses for expectant mothers, whose duty it shall be to instruct them as to diet and hygiene, and also as to the duty of nursing their own infants, and, if necessary, to see that suitable and nourishing diet is provided.*

Third. Provide State legislation for a complete birth registration, under penalty; such registration to be checked by antenatal notice previously referred to.

Fourth. Legislation should be secured making it obligatory upon each mother of an illegitimate child to care personally for her child for at least one year and to nurse it at the breast if physically able to do so, for not less than 6 months—disability to be established only on the certificate of two physicians, and making it a penal offense, as in France, for a physician or any other person to advise or persuade such a mother not to nurse her child.

Fifth. Legislation should be secured whereby every mother of an illegitimate child shall be placed on probation during the first year of the life of the child; the probation officer to be the superintendent of the institution in which she is placed, or, if she is not in an institution, the visiting nurse appointed by the Board of Health.

a. It should be the duty of the probation officer to see that the mother nurses her child on the breast for at least six months if found physically able, on medical examination, and that she continues to care for the child personally during the first year, unless mentally defective. It should be the duty of the probation officer, in case the mother fails to perform this duty, to bring the case before the Court, which should have authority to issue such order as may be necessary in the premises, and to punish the mother for contempt in case such order is not obeyed.

b. It should be the duty of the probation officer to take wise measures to secure the future of the infant and the mother by promoting marriage with the father of the child if there appears to be a genuine affection between them and if such marriage seems to be for the interests of the child,

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*NOTE.—Such service for expectant mothers is already partially provided in several cities, but, thus far, no comprehensive plan has been adopted.

mother and father; or by restoring the mother to her own home or to relatives; or by securing for her a safe and suitable situation where she can keep her child. The relation of the visiting nurse to the young mother should not be that of an official supervisor, looking down upon her from a lofty height, but should be that of a personal friend, vitally and cordially interested in her welfare. If the young woman is placed out on wages, when the nurse comes to visit her she should not ring the front door bell, hold an interview with the mistress and have the girl called to the parlor, but she should go to the kitchen door and make her call directly upon the girl, holding such communication as may be necessary with the mistress as a separate and distinct matter.

Sixth. Such provision should be made as will assure the ability of the nursing mother to care for her child during the first year of its life, in some one of the following ways:

a. In a suitable institution, to be maintained and administered by the City Board of Health.

b. In a suitable private institution to be approved and licensed by the State Board of Health.

c. In a suitable family boarding place to be approved by the visiting nurse; board to be paid by the mother or father of the child, by relatives or from the public treasury. In some cases the mother may be employed outside, provided opportunity can be given for nursing the child in the middle of the day, and provided the work is not so severe as to interfere with the ability of the mother to nurse the child.

d. In a suitable private family on wages, provided that the family shall be selected by the visiting nurse and that the nurse shall maintain a close and friendly supervision of the mother and infant.

Seventh. The visiting nurse having the mother in hand should co-operate when necessary with other philanthropic agencies, such as the Charity Organization Society, the Children's Home Society, the various rescue homes or foundling asylums, etc.

The Association for Study and Prevention of Infant Mortality should become thoroughly familiar with the purpose, spirit, resources and reliability of these agencies. It should co-operate with the Health Department for their regulation and for the establishment of worthy standards, and should become the agency to which the community may look with confidence for advice and direction with reference to the whole subject.

Let the determining principle of this work be that it is a good thing for the mother and the father of the illegitimate child, as well as the mother and the father of legitimate children, to meet their parental obligations toward their own offspring, as far as practicable, and that it is a demonstrated fact that the chances of the illegitimate child for life will be increased at least 50 per cent if the mother's milk can be assured.

Eighth. In the case of foundling infants, abandoned by the mother, the following principles prevail:

a. Every effort should be made to find the mother and to hold her to her obligation to her own child. This is important for the child, but is also important for the mother. There is little hope for the redemption of a woman who disregards the most sacred obligation that the Creator puts upon her.

b. If the mother cannot be found, the most desirable plan is to secure wet nursing for the child. This is done in a considerable number of institutions by arranging to have a mother divide her milk between her own child and a foster child. There are difficulties in this plan, but it has been successfully carried out by the New York Foundling Hospital, the Chicago Foundlings' Home and other institutions.

Wet nursing is secured by the New York Foundling Hospital, the Nursery and Child's Hospital of New York, St. Vincent's Asylum in Philadelphia and other institutions, by putting infants to board with wet nurses in their own homes. The New York Foundling Hospital is accustomed to keep from 300 to 500 infants on board in this manner. Most of the foster-mothers are Italian women who have lost their own infants, usually at birth. They are paid a nominal compensation of from $10.00 to $12.00 per month. The Nursery and Child's Hospital of New York and the St. Vincent's Asylum of Philadelphia also employ Italian women of the same class, and with favorable results. The chief difficulty encountered is the reluctance of the wet nurses to accept infants who are not in good physical condition.

c. A small number of infants are fed by mother's milk drawn from the breast mechanically and administered from a bottle. This method has been used for syphilitic children whom it was not considered safe to put upon the breast.

d. Infants may be boarded out and bottle fed. Great success has been attained with this method by Dr. Chapin, of New York, through the Speedwell Society. This Society has its headquarters at Morristown, N. J., with a local physician

and visiting nurses. Foster homes are selected with care. The infants are subject to daily visitation by the nurses and frequent visitation by the physicians. Only sick infants or infants in an anaemic condition are taken, and the results are reported to be extremely favorable. These good results are obtained by using a thoroughly reliable milk and the highest possible quality of supervision.

e. It is the general verdict of physicians that it is much more difficult to practice bottle feeding successfully in an institution than in a family home. Even in the best institution, and under the most favorable circumstances, it is generally agreed that infants become "hospitalized" after a time and begin to droop.

There are some notable exceptions to this general rule. The Babies' Hospital of New York, under Dr. Emmett Holt; the Babies' Hospital of Newark, N. J., under Dr. Coit; the Children's Institute of Omaha, Nebraska, and a few other institutions, have succeeded in reducing the mortality of bottle-fed infants kept in the institution below the normal rate which prevails in the community at large. This has been accomplished by the employment of head nurses of unusual efficiency, by the employment of a large force of nurses, by securing sanitary conditions which approximate "surgical cleanliness," by securing an absolutely reliable milk supply and by the most constant and skilful medical supervision. To secure such conditions is extremely expensive and requires an amount of devotion which it is hard to secure. The writer is convinced that, taking the community at large, the plan of boarding bottle-fed infants in selected family homes, under competent medical supervision and with an efficient visiting nurse force, is more likely to secure favorable results than the effort to secure the ideal conditions which prevail in the institutions which have been named. In the institution, failure in a single case may expose a whole ward of infants to infection, but when the infants are scattered so that only one is found in a place, the danger of infection or contagion is minimized, and lack of efficiency in one case does not affect others.

*ADDRESS

THE PRESENT STATUS OF INFANT WELFARE WORK IN THE UNITED STATES

By J. W. SCHERESCHEWSKY, M. D., Passed Assistant Surgeon United States Public Health and Marine Hospital Service

As soon as infant mortality became recognized as a social problem, it quickly became evident that the infant's food, its source and methods of administration seemed to be, by far, the most important factors in determining the fate of the new-born child.

Further investigation forced the conclusion that from eighty to ninety per cent. of all deaths from gastrointestinal disease, the chief cause of death in infants, took place in the artificially fed.

It was also plain that the other great causes of infant mortality, namely, congenital debility and respiratory disease, could be modified in their effects only by the solution of a variety of social and industrial problems involving a considerable amount of preliminary work for the formulation of a satisfactory answer.

In order to make a beginning, the most obvious thing to do was to attack the question along the line of least resistance. An improvement in the infant's food supply has seemed the avenue along which immediate advance could be made with the consequence that hitherto the bulk of our energies have been concentrated along these lines.

It is gratifying to note, however, that though this phase of the question has received attention to the exclusion more or less complete of others of nearly equal importance, indications are not wanting that the whole subject is now being considered from a much broader viewpoint, and that other ideas are now in the process of crystallization which are destined greatly to accelerate our progress towards the goal of our efforts. In the absence, however, of any definite policy formu-

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lated upon this broader viewpoint, we must necessarily confine ourselves to what has actually been accomplished.

Having pointed out the direction which efforts to improve the conditions causing the mortality of infants have naturally taken, it may be well to refer briefly to the beginning of this movement in the United States. Although Dr. Variot is generally given the credit of having opened the first infant milk depot at Belleville, France, in 1892, the honor of having first established a milk dispensary for infants belongs to Dr. Henry Koplik, who opened a dispensary of this character in New York in 1889.

Moreover, the first movement towards a general improvement of the milk supply originated in the United States, for it was Dr. Henry L. Coit, of Newark, N. J., who formulated a plan, in 1892, for the production of pure milk under the auspices of medical milk commissions. Since that time the importance of a safe milk supply has received widespread recognition, not only in the interests of the infant population, but also as a means of reducing the general death rate.

In similar fashion the idea of combatting the infant death rate by the establishmnet of infant milk depots and educational agencies has spread throughout the country.

The results, to be presented this evening, of the activities of infant milk depots in the United States are based upon a careful compilation of data regarding their operation during the year 1910, which has been made by Dr. J. W. Kerr, of the United States Public Health and Marine Hospital Service. In order to give those who so desire an opportunity for studying these data in greater detail, a number of copies of Dr. Kerr's report have been brought to the meeting and are available for distribution.

The data were obtained in the following manner: Blanks containing a list of questions embodying the character of information desired were sent out to all the known institutions engaged in the work of dispensing milk for the use of infants.

As has been previously the case, not all the institutions addressed responded, yet a large proportion of them did so. From the replies it is possible to judge approximately what has been the scope and results of their activities.

In all, data were received from 43 institutions, situated in 30 cities in 16 States and dependencies of the United States. In addition to this, communications were sent from health authorities which furnished information regarding general measures for the protection of infant life.

An example of this is the communication of Dr. J. S. Neff, Director of Public Health and Charities in Philadelphia, with respect to the conference on Summer Work for Mothers and Infants in that city. This conference adopted resolutions which provided for the co-ordination and co-operation with that department of all existing agencies in Philadelphia for the betterment of conditions causing excessive infant mortality. These agencies included day nurseries, settlements and neighborhood social-betterment societies which had at their disposal such facilities as baths, camps, mothers' clubs, milk stations and the like; institutions providing temporary shelter for mothers and children, milk stations, hospitals and dispensaries. The wide field of operations is apparent from this list and indicates the possibilities for a broad treatment of this great subject.

The object of the 43 institutions rendering reports as stated by all was the prevention of sickness and death among infants. Their work was carried on either through milk stations, hospitals or medical dispensaries, and central milk stations on farms with sub-stations, or by the direct dispensing of milk in homes either on a physician's prescription or on nurse's order.

Besides dispensing milk, a number laid special stress upon the educational possibilities connected with the work by means of instructive house visits, conferences, lectures and the like, and some, such as the Babies' Dispensary and Hospital in Cleveland, conducted summer outdoor camps with educational features. All these institutions but one employed special measures to educate mothers in the requirements of infant hygiene. The instruction was given by physicians and nurses or by means of pamphlets, or both. In two instances educational work was done at the houses, in two at the central stations and in 38 both at houses and at central consultations.

The Division of Child Hygiene of New York City Department of Health also gave instruction at recreation centers, playgrounds, public schools and by means of public lectures. It is evident that instruction in the care of infants should form a part of the curriculum of all public schools. This is one of the most efficient measures at our command to inculcate the principles of infant hygiene, for not only are essential facts impressed upon the mind at the most plastic period of existence, but it is also the experience of those engaged in the work that the school is a most important center from which information is diffused to the home.

At thirty institutions literature on infant hygiene was distributed with the milk, in one case in seven languages. Twelve distributed no literature, and one only a little.

In some cities, such as New York, Chicago, St. Louis, Philadelphia and Baltimore, sub-stations were maintained in connection with the central station, thus greatly enlarging the scope of operations in those cities.

For instance, in Washington, the Nathan Straus Laboratories supplied milk through six sub-stations, two of which were located at Neighborhood House and Noel House, respectively. The operative details of the latter milk station, however, were carried out by the Washington Diet Kitchen and of the former by the Infants' and Children's Dispensary, under the direction of physicians associated with the dispensary. The Instructive Visiting Nurses' Society of the District of Columbia is closely associated with the institutions just mentioned and is the main source of the nursing staff of these milk stations. This is given as an instance of the co-operation of several charitable organizations which exists not only in Washington but in other cities as well.

Twenty-nine of these institutions stated that they are supported by private means, one partly by private means and partly by appropriations from public funds. The remaining eleven furnished no information, though one of these in Rochester is, I believe, maintained by the Health Department of that city. Two other cities only—New York and Pittsburg—are known to have appropriated funds for carrying on such work.

We pass now to the consideration of to whom and under what conditions milk was distributed in these institutions. Twenty-three of these distribute to infants only, while the beneficiaries of twenty are infants and adults. At some of the depots the adults are either nursing or expectant mothers, so, in this way, infants are indirectly benefited. Of these 43 institutions, 8 sell the milk, 4 sell it below cost, 28 sell it to those who can pay and give it to those who cannot, while 3 give it outright. The sale of milk furnishes one means by which funds are economized in order to extend the work, although the price asked varies from a nominal sum to actual cost.

Notwithstanding that some of these institutions mention adults as among the beneficiaries, the attendance was mainly composed of infants. From data which thirty-nine institutions furnished as to what proportion of the beneficiaries were children, invalid adults and nursing mothers, we learn

that in seventeen all were children, in six almost all, in eight from ninety to one hundred per cent., in two from eighty to ninety per cent., in three from forty to fifty per cent., in one from thirty to forty per cent., and in one from twenty to thirty per cent. Besides children, the other beneficiaries were invalid adults and nursing or expectant mothers. The average age of the children fed was furnished by thirty-six institutions and the majority were under one year of age; in practically all cases they were under three years of age.

With respect to the physical condition upon entering we find that at two of the institutions none of the children was sick when entered; at two, all were sick. At the remainder the data would indicate that the majority were ailing when first seen and that the chief activities of these institutions were among sick children.

Consequently, in the main, they exercised a curative rather than a preventive function. The Boston Milk and Baby Hygienic Association, however, was an exception to this rule, as none of its beneficiaries was ill upon application, and when a baby under the care of this Association becomes ill, it is sent to the physician or hospital that referred the case.

The information as to the subsequent health of the children receiving the milk was somewhat indefinite, but indicated that, on the whole, a decided improvement was present. A number of these depots were operated in the summer only so that no information was available as to the state of health of their beneficiaries during the winter.

At twenty-eight of the institutions the milk was dispensed in individual feedings, at six in ordinary bottles, at one in both individual feedings and ordinary milk bottles, at one in bulk, and at five in individual containers and in bulk.

The milk was variously modified, the number of modifications varying from two to eighteen. On the whole, the general practice seems to have been the preparation of standard formulas from which no departure was made except in special cases as indicated by a physician's prescription. These various modifications were intended to meet the needs of infants varying in age from the newborn to twelve or eighteen months.

Considerable diversity in the use of heated milk existed; at fifteen institutions the milk is heated, at seventeen it is dispensed raw, and at five both heated and raw milk is used.

The temperature employed for pasteurization varied in the different institutions from 140 to 170 degrees. One depot only used a continuous flow pasteurizer holding the milk at 170 degrees for one minute. At the majority of the depots,

however, twenty minutes was the minimum time of exposure. At ten of the depots the milk was heated in the summer and winter alike. In others less heat was applied in winter and at some none at all. At eleven institutions "certified" milk was used. The remainder appear to have used the best milk obtainable.

Now, what were the results obtained by these institutions in diminishing the infant mortality rate? Unfortunately, we can only guess, for the reason that the statistics concerning infant mortality in the several cities are by no means comparable. This is due to different methods employed in the determination of the rates and because of the incompleteness of the statistics upon which they are based. Besides this, the returns from these various institutions as to the results among their beneficiaries are not calculated upon a uniform basis.

There is but one correct way to determine the infant mortality rate, and that is the ratio of the death of children under one year of age to the number of children born alive during the year. Many of the cities where these institutions are located are without birth registration and in others it is so incomplete that any ratio based upon the returns would be misleading.

We, therefore, find considerable diversity in calculating the infant death rate. It appears in such form as the ratio of deaths under one year to the total number of deaths, the number of deaths under one year of age to 100,000 of population and the like.

Nevertheless, it can be stated without hesitation that a considerable reduction in the ordinary infant death rate was effected in the case of the beneficiaries of these institutions. Taking the returns furnished for what they are worth, it would appear that the death rate noted in eighteen institutions among the infants in attendance was somewhere in the neighborhood of forty per thousand, or approximately 3¾ times less than the general infant death rate of the United States.

When we further consider that the majority of these children were sick when received and that the probabilities would have favored their death before the end of their first year, under ordinary circumstances, it is clear that many lives have been saved by these institutions. Nor is it possible to calculate the good effected by the dissemination of knowledge about the care of infants which was one of the results of their activities. There can be no doubt but that it has had a powerful influence, perhaps more so than the actual attention given to their beneficiaries.

As to the actual number of infants benefited, the information is also by no means as definite as desirable. The data received, however, indicate that twenty-nine institutions fed a total of 13,873 babies, and two additional institutions fed daily about 2,500 and 300, respectively. Besides this, eight societies fed a total of about 1,504 adults, presumably invalids and nursing or expectant mothers. In addition, the Milk and Baby Hygiene Association of Boston supervised the feeding of 1,870 children, 402 of whom were stated to be breast-fed, 554 partly breast-fed, and 875 fed entirely with modified milk.

Now, how do these numbers compare with the total number of infants in these cities? Again, only approximations can be made. The thirty cities in which these institutions are located have an aggregate population of about 14,000,000. This would imply an annual total of about 720,000 births, so that the floating population of infants below two years of age may be estimated at about 1,300,000. Approximately one-fourth of this number belong to the very poor, the social stratum which furnishes about four-fifths of the total infant mortality.

It is clear, therefore, that only a very small proportion of the infants who should have been the subject of supervision have been affected by such activities. Nor is it possible to show that there has been any great extension of this particular branch of the work since 1909, when the reports of 21 institutions showed that 26,588 babies had been fed.

It is clear that, so far, the work has been of a preliminary and emergency character, and if the problem is to be solved, no time should be lost in getting upon a broader basis. This problem may be regarded as a social condition which should be met by methods analogous to those employed in the control of a specific disease.

The first essential to the eradication of a disease is the study of its epidemiology; that is, a detailed inquiry into the conditions upon which it depends and the extent to which each of these conditions is locally prevalent. This is, of course, fully realized by all who are interested in the question and is emphasized by the formation of the Association whose annual meeting we are now attending. Moreover, numerous social workers are now engaged in digging out fundamental facts. Yet all of this will prove insufficient unless the prime requisite is obtained upon which all measures for the solution of this problem are based.

We cannot hope for material advances until accurate statistics are forthcoming, and accurate statistics cannot become

available until there has been established universal and complete birth and death registration in the United States. Moreover, it will not be sufficient to know how many children are born and how many die in each particular locality. We must, in addition, find out what they died of and possess knowledge at all times of the local prevalence of disease.

For the causes producing excessive infant mortality will vary according to local conditions, and had we at our disposal morbidity and mortality statistics of any accuracy, the determining factors could be analyzed and the preventive measures formulated with the hope of achieving substantial results.

It is obvious from the foregoing that the solution of the problem can never be found by the unsupported action of private and unofficial agencies. The co-operation of Federal, State and Municipal authorities must be obtained. The entrance of these powers into the field, especially when co-ordinated with existing agencies, could not fail so to crystallize the plan of campaign as to place material results within measurable distance.

The problem would be approached from all its sides and by the enlistment of all available agencies, conditions locally operative would be detected and a specific remedy applied.

Nor should we lose sight of the important part that the measures leading to the reduction of the infant mortality rate would not only save countless lives and insure the development of children unhampered by acquired physical handicaps, but, at the same time, would so improve general sanitary conditions that strides in material prosperity and economic efficiency would be made of which we are at present incapable.

* ADDRESS

THE PUBLIC IN THE REDUCTION OF INFANT MORTALITY

By H. J. GERSTENBERGER, M. D., Cleveland, Medical Director of the Babies' Dispensary and Hospital of Cleveland, Assistant Professor of Pediatrics at the Western Reserve University, Director of the Department of Child Hygiene of the Board of Health of the City of Cleveland

As this is a popular meeting, I assume that you will much prefer to hear a plain talk on a subject that ought to be of vital interest to you, rather than have presented to you scientific data and facts regarding some special phase of this important work. I have, therefore, chosen to speak on "The Public in the Reduction of Infant Mortality"; that is, the part played by the public in the production of high infant mortality and also that played by it in its reduction, especially by prevention.

All of you have, undoubtedly, in the past, heard and read much regarding the causes of the great loss of infants' lives, and some of you have possibly taken advantage of the opportunity offered during the past days to hear more special presentations and discussions of the subject from men and women of other cities actively engaged in the work, voicing their convictions as to the existence of an evil and the necessity of its elimination. So I think there is no need of my telling you why babies under one year are dying in the United States to the extent of about 300,000 per year, except to emphatically call your attention to the fact that at least 50 per cent of these are dying without any real cause, simply from ignorance of the parents, their advisors—they are the physicians and nurses—and from ignorance of the public at large.

Most parents, especially the more poorly situated, have but the slightest conception of the proper hygiene of the child and its surroundings, and many of them do not see that the best thing for a child is its own mother's milk, and also that most mothers can nurse if properly directed. The big bulk of advisors of the parents—the physicians and nurses—are too ignorant to train and advise the parents, firstly, because many of the schools and hospitals training physicians and

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nurses give no time at all to the study of the infant; secondly, because many, that do, have teaching forces that are not qualified, either because they are not capable or because they have not the opportunity to keep in touch with the great progress which is being made in this work, especially in foreign countries, or because the material placed at their disposal is so incomplete and small that it by no means suffices for teaching purposes. Then, too, another important reason is that most of the "infant institutions" have no facilities and no funds to train or enable men to do research work, through which we learn to know the fundamental and true conditions, and are so enabled to place the practical work upon the only basis which can ultimately bring the effective result so much desired.

The public is ignorant of the true state of affairs, because it does not appreciate how many lives are lost and what this loss means to the nation, but also because it does not know that the power to remedy the conditions at fault lies in its hands and in its hands alone.

From what I have so far said you will be able to conclude that the remedy for the large loss of infants' lives must lie in education; that is, education of the parents, education of their advisors, and education of the public at large, or, better still, education of the future mothers, the future advisors, and the future public.

To teach the present parents we need so-called prophylactic babies' dispensaries or infant welfare stations, where the parents may bring their children to be examined and supervised by the physician and nurse, the latter of whom will also visit them in their homes and attempt to improve the conditions there. In this work, of course, is included the necessary care and instruction that is required in the production and preparation of the infant's food. In order to train the physicians and nurses, however, it is necessary that those who have graduated be given an opportunity to replenish their knowledge in post-graduate courses, and that those who are at the point of graduating or who in the future will graduate, but still without sufficient training in this special field, be also given an opportunity to take post-graduate courses. The public at large must be educated at every turn by every organization or institution that is qualified to do it, therefore, especially by statements or presentations coming from first-class medical schools. These ought to be the center where at all times the best knowledge can be obtained.

But still better than this plan is the one, as already stated above, to educate the future parents, the future physicians

and nurses, and the future public, as early and as thoroughly as possible.

The place to educate the future mothers is, to my mind, the eighth grade of the public schools. Objections might be made to this plan because of the age of these children, but I believe this cannot outweigh the fact that most of the girls who need the advice most will never have the opportunity of entering a High School or Women's College, and inasmuch as they need the advice more than any other class of future mothers, it seems to me the scheme most feasible is the one to require that they make use of the opportunity to learn during their last year at school. Of course, this does not mean that girls attending High Schools or other institutions have, after their graduation from the public schools, no need for further instructions. The fact that the children of the well-to-do die in smaller numbers than those of parents not so well situated is not due so much to the superior knowledge of those mothers in the care of their children as it is to the ability of the former to place their children in better surroundings, and in this way make them more resistant to their own onslaughts of poor feeding. In other words, while the education given the girls in the public schools would be of the most elementary type, that given in the High Schools, Women's Colleges, or in special classes for older girls who have only previously attended the public schools, could and ought, of course, be more advanced.

In England progress has already been made in this direction. Philanthropic institutions have offered courses in the hygiene and the care of the infant and child, to girls at school age or older, and in some cases the elementary schools have added such a course to their curriculum. Germany has as yet done nothing in this respect, but it has recognized the importance of this addition to the regular school curriculum, and it, therefore, will not be long before the Germans, too, will have a thorough course installed. In this country the Board of Health of the City of New York, and as we heard from Doctor Young last night, here in Chicago likewise, has made a beginning by organizing in the public schools clubs amongst the girls. At the meetings of these clubs the fundamental rules in the care of the infant are taught and practical demonstrations are given, and in a manner to stimulate the individual child to set forth its best efforts. This work represents an admirable beginning, but it ought soon to be placed on the regular curiculum and be made compulsory.

The education of the future mothers, especially at a time

when they can be interested, represents as important a means in the practical reduction of infant mortality as any that we know of today. The only other means, to my mind, that can equal it in the ultimate good results here in the United States is the thorough education of the future physicians and nurses, and for this we need many more well-equipped hospitals for infants, because, otherwise, the training must be had from books, and such really cannot be called a training nor compared to that obtained through the practical experience at the bedside. Of course, a modernly equipped babies' hospital, without capable and properly trained men, is a waste of money and a pity to see, and that brings me to one of the greatest evils that exists in America today, and to which I desire to especially call your attention, namely, to the excessive number of medical schools, the most of which are nothing but a disgrace, not only to the medical profession, but also to the country at large. You here in Chicago have, I believe, a record in this respect, harboring today 14 schools called medical schools, many of which are yearly pouring out unto you—the ignorant, the patient, the indifferent public—poorly trained, unripe men and women, not as physicians, but as collectors of dollars and cents for the poor advice and service that they give you when you call them to care for you and your family. They come, however, into your family at your own solicitation. Therefore, it is your own fault.

There is a big movement today in the United States among philanthropists and physicians themselves to remedy this condition as quickly as possible, but unless you, the public, take a hand in this housecleaning, its thorough accomplishment will be postponed to an indefinite date, bringing good to no one, but sorrow and despair to many, especially, again to you, the public. It seems to me as if you could aid to an enormous degree in closing the doors of schools that are called medical, but which ought to be called quackeries and graft shops, by choosing, at the time when you do, your family physician from the ranks of men who have graduated from a recognized school of high standard. Of course, this will not guarantee that every man graduating from such a high type school will show himself to be the able family physician that you and the faculty of the school expect and hope him to be, but it will, however, be true that the percentage of such desirable physicians will be far greater among those men who have attended such high type schools than the percentage will be

among such who have graduated from schools that ought never to have existed.

Another reason for effecting as soon as possible a change in the medical schools of the country to aid in the reduction of infant mortality is the one that no individual other than a well-trained physician can properly direct, not only the scientific, but also the practical work to be done in the reduction of infant mortality. Today those physicians who are in close touch with the progress of the world know that there exists very little absolute certainty indeed as to the direct causes of the great loss of life during the summer months, with the exception of the one that the child is not getting its mother's milk. You will be astounded to know this. You have heard most positive statements by some that it is only the milk, by others that it is only the heat, and by still others that it is only the increased or lessened humidity, while as a matter of fact I desire to say that none of these conditions are based upon complete enough findings to be accepted with any degree of positiveness. This does not mean that the work carried out today to reduce infant mortality is useless and ought to be stopped, but this fact will force you to admit that it is simply impossible for any individual to intelligently direct the practical reduction of infant mortality, except that he be in a position to know these facts, and also, of course be able to apply his knowledge. It is a common experience, as you all know, that many men with good knowledge are of little avail indeed for the simple reason that they cannot apply it, and, therefore, it happens that some with less knowledge do better work.

These statements, I believe, will suffice to prove to you that no social worker nor any nurse can direct infant mortality work as intelligently as it ought to be done. It is, however, also a fact that at certain times and in certain places a nurse or a social worker can fill the position better than any physician available under the circumstances. Whenever this happens, however, there is something wrong. So you see, the improvement in the medical education of the United States will be of no small moment in the ultimate lessening of the exorbitant death rate among infants.

Inasmuch as you now know that many of the fundamental causes of this great loss of human life are still unknown, you will agree with me that a most important thing to be accomplished is the study of these conditions, andI, therefore, wish you further to know that such a study can best be carried out in babies' hospitals and asylums, especially so, when equipped

with all the facilities that modern science has placed at our disposal. At present, we in America are still taking most of this new knowledge from foreign countries, especially from Germany, for the simple reason that Germany has many such institutions and we have but very few. I believe the American public will, when it awakens to this fact, be just as much interested in the international progress and advance of American medicine as it is in any material or commercial American progress. So, what we need are many more babies' hospitals to care for ill infants, to train doctors and nurses, and, adequately equipped, to do research work.

A further important change that is fundamentally necessary, and that is that of obtaining accurate statistics, at least those concerning the birth rate and the death rate. Just a few days ago I was informed by the Chief Statistician of the Bureau of the Census at Washington that but 58.3 per cent of the total population of the United States is in the registration area, and that it is impossible even in this area to ascertain, as conditions exist today, an accurate birth rate. Until we are in a position to at least absolutely know how many children are born and how many children die in our country, we will continue to be groping in the dark, as far as knowing the actual results of our work. Today mortality statistics in America represent simply guesses, whereas in foreign countries, especially again in Germany, a most accurate record can be had of the effect of the propaganda obtained there on the death rate.

In Germany, the Government, Municipal, State and Federal, is the watchdog of the national health. No body of men are more on the alert to ferret out the causes of disease, accidents and deaths and to attempt as thoroughly and as quickly as possible the removal of these causes than those who are in the employ of the German cities and states. They are so active because in order to hold their positions and advance, the Government requires a most thorough and constant attention to their work, for the simple reason that it is convinced beyond a doubt that its greatest asset is the health of the nation. German cities are going into debt at a rate that would even surprise American municipalities, because they have sufficient confidence in the future of their citizens and because they recognize the ultimate economy of prevention.

During 1909 the City of Charlottenburg, with a population of 275,000, spent about 115,000 Mk. for infant mortality work specifically. Translated into our money and its relative value here, this would mean nearly $50,000, and when applied to the

population of the City of Cleveland, would represent an expenditure of $100,000 annually. If I were to add to this the amount spent annually for the operation of maternity and infant hospitals, and other activities having a direct bearing upon the welfare of the infant, I should have to add a further amount, nearly twice as great as the one quoted.

I think there is no difference of opinion as to whether the protection of the health of the infant is a duty of the government or not. If this is so certain, why, then, have our governments, on the whole, done so little in this respect? As I stated earlier in the evening, because you, the public as a whole, have been too indifferent. In Germany the government is interested in the promotion of health of its own accord; here in the United States, however, the government, in most instances, is interested only when forced to be so by public opinion. That is why here in America we must resort, at present at least, more to education to bring about results, rather than to the enforcement of laws, as is done most scientifically in Germany, and as it really ought to be done everywhere.

And that is the reason why you, the public, are fundamentally to blame for the relative lethargy of our government. You have not created the public opinion that you wish your health and that of your children guarded as it should be—as good, yes, better than in any other country, for the simple reason that unless you do you will not be able to stand up in the struggle of life and win out.

So I desire tonight to urge you, the public, to make known to your officials who have to do with the spending of your money that you do recognize the great importance of protecting life, especially at its beginning, and that you do wish your funds applied accordingly. This you can do by using your vote to keep the Board of Health, the Board of Education, and the Police Force out of politics, to get proper registration of births and deaths, illnesses and accidents, and to establish a national department of health, to act as an advisory body to the local and State Health Boards, and so be the connecting link between the others.

Until, however, you will have accomplished this, it is necessary that you recognize the great work that private organizations are doing for your government, and that you, therefore, respond with liberal financial aid to their appeals for funds. As the government for many years to come will not be able to adequately prepare itself to do all of the work as efficiently as desired, it will be necessary that private

philanthropy continue to aid. There ought, however, be the most cordial relation and thorough understanding and co-operation between such institutions and the government, and the relative position that the private organization ought to occupy is the one of an experimental agency; that is, it ought to spend its thought and energy in attacking new problems, and, when it has definitely reached a practical solution, present it to the Government for continued execution.

In conclusion, now I desire once more to call your attention to the fact that the high infant mortality represents the greatest loss of mankind today, that here in America, you, the public, have the "say-so" whether this shall continue to be so or not, and that it is, therefore, your immediate duty to say emphatically, "Yes, it must be stopped." The solution lies in your hands, and it is well for you to realize that by reducing infant mortality, especially so by prevention, you will at the same time be doing more to promote the health of the other family members and to prevent deaths caused by many diseases, especially those by tuberculosis, than you can with any other measure except, in the case of tuberculosis, by the one of forcefully isolating the careless, so-called "open" cases of tuberculosis.

So there are valid reasons enough for a most active interest of the public in the reduction of infant mortality, and I hope the time is soon here when the American public will let the world know that it has formed a correct opinion and has made it public, and is, therefore, making use of its power and doing its duty.

*REPORT OF THE COMMITTEE ON BIRTH REGISTRATION

The resolutions adopted by this Association at its last annual meeting emphasized the necessity of birth registration as a pre-requisite for all practical work in the prevention of infant mortality. It might be assumed that such resolutions epitomized the subject at once and for all time and that complete birth registration would, therefore, become forthwith an established fact.

The evidence of experience shows, however, that this result is not to be attained either by purely academic discussions or through expressed opinions, no matter how exhaustive these discussions or how unanimous these opinions may be. They are but the first faltering steps toward accomplishment and it is quite important that they be followed by the influence of continuous and practical effort.

It is appropriate, therefore, to submit the proposition that if birth registration shall be considered the foundation upon which the most fruitful work of saving infant life is to be constructed, it is proper and reasonable to require that such registration be performed with sincerity. This is demanded not alone as a pledge of confidence in the expressed judgment of the Association, but likewise as a proper measure of the successes or failures in preventive work. The report of last year states: "It should be the great opportunity of this Association to aid to the full extent of its power in supporting the effective official enforcement of registration laws."

And your committee feels that now in the third year of its existence, it may address itself largely to the methods and means by which this end may be accomplished. If the time has arrived when conditions justify the existence of such an association as this then the time has also arrived when one of the most essential features of its work shall be fully developed.

If this Association hopes to have its efforts measured by the proper and accepted standards of practically all civilized nations, it will at once cease to quote the statistics of infant mortality of cities and states that are not based upon accurate birth registration. To use any other standard is a con-

* Presented at the General Session, Friday afternoon, November 17, 1911.

fession of weakness in our own convictions and of impotence in our own abilities

An inspection of the laws relating to the subject of birth registration in all of our principal municipalities and of not less than fifteen of our states shows that there are ample legal provisions for the complete and accurate registration of all births that occur within their respective limits. The legislative bodies of these localities have, therefore, discharged their public obligations by providing the ways and means for the acomplishment of this object.

As opposed to this situation we find scarcely a city or municipality included in the above class that possesses birth statistics worthy of serious consideration. As a matter of fact, these statistics are so incomplete that all estimates of infant mortality must be based upon death rates and not upon birth rates.

One of our largest municipalities with an adequate birth registration law in effect for twenty-seven years admitted in 1909 that twenty per cent. of all births were unregistered. Another municipality with an equally good registration law in effect for nineteen years admitted twenty-five to thirty-five per cent. of unregistered births. Both of these municipalities claim some distinction for general effectiveness in public health work and both are engaged in special effort to reduce infant mortality.

With this condition confronting us, it is evident that the power of this Association needs to be directed not against the public; not against legislative bodies; not against physicians and midwives; but against those officials who with laws at their command, continuously neglect to enforce their provisions.

What would be the moral effect upon such registration officers if they found their voluminous and apparently creditable reports thoroughly discredited with co-workers and the public, by reason of their failure to enforce laws which should furnish the actual basis for real practical work?

There should be an expressed sentiment that a municipality or state which does not register its births is not in a position to present reliable evidence of its work in the prevention of infant mortality. It may talk of visiting nurses, sanitary inspection, pure milk stations and a host of other things, but until it presents through birth registration the proper and adequate means by which its efforts may be measured, it deserves but a small place in the proceedings of associations of this character.

It is true that something has been done and is being done to prevent infant mortality by the application of the general principles of hygiene and sanitation, but much of this work is spasmodic, disjointed and ineffective, when it might just as well be properly co-ordinated and efficient.

The birth registration bureau in any locality should be the starting-point of every line of prevention of infant mortality. Why should the visiting nurses, or the medical inspector, or the social worker go groping blindly around the courts and tenements seeking babies, when a properly conducted birth registration bureau should send them on their journeys with absolute directness?

There is ample ammunition upon every standard birth certificate to equip every inspector in advance of house visitation with knowledge of the most vital character. The visiting nurse knows the plague spots of her particular district; she knows where poverty and overcrowding exist, where contagious diseases thrive, where dirty homes abound and where sunshine never penetrates. The mere statement of locality upon the birth certificate should bring the individual picture before her.

There is a growing tendency upon the part of some municipalities to ignore the value of a complete birth report made within five days or within ten days of a birth, on the plea that the lapse of time is too great for effective work, and they incline to a system of notification within twenty-four, thirty-six or forty-eight hours; but it may be very seriously questioned if a municipality that has not effectively enforced a five-day or a ten-day law is in a position to require post-card notification at a shorter interval.

As compared with simple notification the wealth of information upon a standard birth certificate should be of the greatest value to the visiting nurse. She should go direct to the home, armed with knowledge as to nationality, the occupation of the father, the occupation, if any, of the mother, the number of children of that mother and the number of living children. This knowledge will be her passport to the confidence of that mother. Her own instincts and training will point out to her the kind of instruction required by the inexperienced and youthful mother with the firstborn child; it will point out the way to the character of relief that must be extended, if that mother through force of circumstances is required to be a wage earner; or what must be done in a tenement home for a mother who has borne three or four children and lost them all; or what agencies must be brought to bear

in the homes of the poor and ignorant where possibly six, seven, eight or nine children have been born and where all but two or three have died.

Every efficient registration office will seek constantly to test the completeness of its records, and the work of the medical inspectors and visiting nurses should be reciprocal in character. They should not only be supplied with information in regard to infants registered but they should carry with them, birth registry cards and note thereon the principal facts concerning every newborn child which comes to their attention and for which they have not received an official registry notice. This would be a most valuable means of supplying a registration office with unregistered infants and of detecting those who have neglected to report them.

A registration office should consult the baptismal records of the various churches; it should consult the entrance records of every home or asylum or hospital into which infant children are received; newspaper notices of births should be clipped and checked; it should conduct a house-to-house canvass in certain portions of the municipality at regular intervals; and it should check the death of every child under a certain age against the birth registration. These are the practical means by which satisfactory evidence may be gathered as to the efficiency of birth registration in every locality. And, finally, the penalties of every birth registration law should be enforced promptly and continuously against every offending person.

There never was or never will be a registration law that is self-operative. When penal clauses were inserted in registration laws, it was done with the full realization that evasions of the law would occur and that they should be punished. Your committee would, therefore, amend the proposition of last year by the statement that it should be the great opportunity of this Association to aid to the full extent of its power in *demanding* the effective, official enforcement of registration laws. In view of the fact that the United States Census Office has for the past several years been engaged upon the compilation of birth statistics from a number of our states and municipalities, we would respectfully offer the following resolution:

Resolved, That the American Association for the Study and Prevention of Infant Mortality respectfully request the United States Census Office to supply to the Secretary of the Association from year to year a list of those states and munici-

palities which have presented satisfactory evidence of registering at least ninety per cent. of their births; and

Resolved, That this Association in presenting official statements of infant mortality confine their statistics to such cities and states, and that the rates be expressed in proportion to the number of children born.

(Signed) WILMER R. BATT, M. D., *Chairman.*
W. C. WOODWARD, M. D.,
J. N. HURTY, M. D.,
CHAS. V. CHAPIN, M. D.,
Committee.

The resolutions were put to vote by the chairman and unanimously adopted by the Association.

In the absence of Dr. Batt the report was read by Dr. Joseph S. Neff.

III. INTERNATIONAL CONGRESS FOR THE STUDY AND PREVENTION OF INFANT MORTALITY.

By HENRY L. COIT, M. D., Newark, N. J.

The report herewith presented is an attempt to give an impression of the above named important International Congress. Under the high protectorship of Her Majesty, the Empress and Queen, and the patronage of the German Imperial government, the III. International Congress for the Protection of Infant Life was held in Berlin, September 11th to 15th, 1911.

The first Congress, held in Paris in 1905, was inspired and organized by representatives of the French agencies for the protection of infant life (Consultations des Nourissons and des Gouttes de Lait). Two years later in Brussels, the meeting took on a broader scope for its work, and through a permanent organizing bureau called "The International Union for the Protection of Child Life," placed the organization of future congresses in its hands, with its headquarters at Brussels, and Dr. Eugene Lust as Secretary General.

At a meeting of the Permanent Committee in 1909, Berlin was chosen as the place for holding the third congress. A committee on organization was elected under the presidency of Dr. Bumm, and the vice presidency of Professors Dietrich and Heubner. The president elect of the congress, Professor Theodore Escherich of Vienna having died, Professor Dietrich of Berlin was elected president, with Professor Arthur Keller of Berlin as Secretary General.

The third congress convened in the parliament chamber of the Reichstag, the government having assigned this capitol building for the general sessions and numerous section meetings. The opening session was honored by the presence of Her Majesty, the Kaiserin, and was presided over by His Excellency, Dr. Von Bethmann-Hollweg of the Prussian government.

The addresses by the national representatives were delivered mostly in German and French. The only English speaking

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* The American Association for Study and Prevention of Infant Mortality at the Baltimore meeting elected an American Committee to attend the Berlin Congress. Seven members were in attendance: Dr. Henry Koplik and Miss Ellen C. Babbitt of New York; Drs. Sherwood, Welsh and Cone of Baltimore; Drs. Hedger and Hall of Chicago, and Dr. Henry L. Coit. The writer was asked to make the above report at the annual meeting of The American Association held in Chicago, November 17, 1911.

delegate recognized at the meeting of inauguration was Dr. Arthur Newsholme, head of the British National Bureau of Health. The native delegate for the Chinese Imperial government, Dr. Lim Boon Keng of Peking, dressed as an European, also spoke in English.

Representatives, either as delegates or members, were present from the Imperial government, most of the large municipalities in the German Empire and the Confederate States, and from foreign countries, as follows: Argentine Republic, Australia, Austria, Belgium, Canada, Chili, China, Cuba, Denmark, Egypt, France, Greece, Great Britain, Hungary, India, Italy, Netherlands, Norway, Portugal, Roumania, Russia, Sweden, Switzerland, Spain, Uruguay and the United States. About seventy-five English speaking members were present, of which sixty were from Great Britain, prominent among whom were Bailie W. F. Anderson of Glasgow, President of the British National Association on Infant Mortality, Dr. Arthur Newsholme of London, and Alderman Benjamin Broadbent of Huddersfield.

It was unfortunate that our National Association did not take the proper steps to send a representative with governmental appointment to present to this congress the governmental, philanthropic and national organization work in the United States, in which there are so many efficient agencies designed for the protection of infant life. Our president, Professor Charles R. Henderson, was expected to represent these various activities, but was detained in London at the International Prison Congress, and the other members of our Association present were not properly delegated.

After the opening session, the congressists, of which there were about eight hundred present, met in five sections to present and discuss the work of the congress:

I. Teaching and Instruction as it Relates to Physicians, Visitors, Nurses and Social Workers.

II. The Work of Protecting Infants by the Employment of Pre-natal, Neo-natal and Post-natal Measures by State and Municipal Help to Mothers and Their Children; Encouraging Normal Breast Feeding; The Purity of Infants' Milk; Infants' Welfare Stations for Instruction and Material Assistance.

III. Laws and Other Measures of Public Administration Concerning the Protection of Infant Life; To Provide for the Care of Defectives, Illegitimates, Syphilitics, and the Control of the Public Milk Supply.

IV. Guardianship as Provided by State Institutions, Hospitals, Orphanages and Country Homes.

V. Statistics Dealing with Plans for an International System of Standards for Determining Infant Mortality.

The Committee on Arrangements presented to each delegate and member an octavo volume in German, French and English, written by the president of the congress, Professor Dietrich, being a description of the hospitals, institutions, and infants' welfare agencies in Greater Berlin, organized and equipped by the government or private philanthropy for the protection of child life. It served as a guide for those who wished to visit these institutions, of which there were more than fifty in the city.

Among the prominent persons in charge of the section work were Professors Heubner, Baginsky, Biedert and Czerny. Many valuable papers were read before the sections. Among the notable scientific presentations were the following: Prof. Marfan, Paris, "The Teaching of the Pathology of Infancy;" Prof. Medin, Stockholm, "Results of Under-graduate and Post-graduate Instruction of Physicians in the Hygiene of Infancy;" Prof. Langstein, Charlottenburg, "Public Instruction Concerning Nursing and Feeding of Infants;" Prof. Finkelstein, Berlin, "Hospitals, Asylums and Homes for Infants;" Prof. Schlossman, Düsseldorf, "Protection of Foundlings and Illegitimate Children;" Dr. Marie Baum, Düsseldorf, "Care of Infants in the Country;" Dr. Henry Koplik, New York, "The Development of Pediatric Medical Teaching in the United States;" Dr. Charles G. Kerley, New York, "The Training of Nursery Maids." Among the American papers, there was one presented by Mr. Nathan Straus, reporting his philanthropy of distributing modified and pasteurized milk to the poor. The writer, also, read a short paper on "Standards for Raw Materials in the Substitute Feeding of Infants."

Among the many functions provided for the entertainment of the attending members were a reception by the president at the Prussian House of Commons, reception by the Municipality of Charlottenburg, and a banquet at the Zoological Gardens, visits under the guidance of prominent congress officials to the principal children's hospitals and institutions in Berlin, Charlottenburg and Weisensee, reception of the congress and banquet given by the City of Berlin in the town hall, and a gala performance at the opera, given in honor of the visiting members.

At a meeting of the English and American delegates, in which it developed that because of the prevailing language in which most of the papers were presented, much difficulty had been experienced in getting before the congress an adequate

representation of the work being done in Great Britain and North America on the study and prevention of infant mortality, the writer suggested that in view of these facts, it would be practicable to hold an English speaking conference on infant mortality in London, co-incident with the International Medical Congress in August, 1913, and expressed the view that since this would occur midway between the present and the next quadrennial meeting of the International Congress on Infant Mortality, that it would not detract from, but fix and increase the interest of English speaking countries in the international program. The plan was well received, and the British National Conference on Infant Mortality has since adopted it, and will endeavor to organize the conference.

On September 14th, the sitting of the Permanent Bureau occured to determine the place of the next congress, to elect officers and new members of the Permanent Committee of the International Union, in the hands of which, the organization of the next congress is placed. On the invitation of the Holland government, it was decided to hold the fourth congress in The Hague in 1915, with the understanding that the fifth would be held in London in 1919. Professor Hector Treub of Amsterdam, President of the Holland National League for the Protection of Infant Life, was elected president. Dr. Eugene Lust was re-elected Secretary General, with headquarters at Brussels, Belgium. His address is 27 Rue de Limite.

The American delegates present found that the United States would be allowed twenty-five members, and the following persons, including the four previous members, were elected to the permanent bureau: Abraham Jacobi, Charles R. Henderson, L. Emmett Holt, John W. Kerr, J. H. Mason Knox, M. J. Rosenau, Henry Koplik, H. J. Gerstenberger, Helen C. Putnam, Cressy L. Wilbur, T. M. Rotch, H. D. Chapin, R. G. Freeman, S. McC. Hamill, L. E. LaFetra, C. G. Kerley, John How land, F. S. Churchill, Nathan Straus, G. W. Goler, L. C. Ager and Henry L. Coit.

A very pleasant and memorable occurrence marked the closing session of the congress. A spontaneous outburst of good feeling by the English delegates toward their German neighbors was expressed in a speech of felicitation by Alderman Benjamin Broadbent. This was followed by a cordial response in a kindred spirit by the presiding Prussian prince. It was a fitting termination to an international meeting having broad humantarian ideals and purposes, and filled all who heard it with great enthusiasm.

* REPORT

SPECIAL METHODS IN GREAT BRITAIN FOR THE REDUCTION OF INFANT MORTALITY

By ELLEN C. BABBITT, Special Agent, Russell Sage Foundation, Department of Child-Helping, New York

Dr. Arthur Newsholme, Medical Officer of the Local Government Board of England and Wales, in his report for 1909-10, states that during the last four years "there has been a widespread awakening to the national importance of child mortality, and a concentration on efforts to diminish it such as has never previously occurred. Sanitary authorities and their officers have devoted a large proportion of their time and energy to this supremely important matter. The Notification of Births Act and the appointment of health visitors have had influence beyond the districts in which the Act has been applied and health visitors have been appointed; for the public conscience has been aroused and education, moral as well as mental, has rapidly progressed. It is significant that, corresponding with this steadily increasing effort of sanitary authorities, there has been a decline of infant mortality which is unexampled."

The International Statistical Institute in The Hague published a report in September, 1911, showing that the rate of infant mortality in the period from 1900 to 1910 decreased as follows:

London	39 per cent.
Liverpool	30 per cent.
Manchester	30 per cent.
Birmingham	36 per cent.
Edinburgh	24 per cent.
Glasgow	16 per cent.
Belfast	18 per cent.
Dublin	23 per cent.

Since 1874 the Civil Registration of Births has been compulsory in England. According to this law, six weeks might

* Presented at the General Session, Saturday, November 18, 1911.

elapse before a birth was registered, so the parents not infrequently waited to see whether the babies would live through the trying first weeks before going to the registrar. It often happened that a birth and death were registered at one and the same time, so the first intelligence of the existence of a baby which reached the health authorities was the fact that the baby had died.

In Huddersfield, Eng., the Medical Officer of Health, Dr. S. G. Moore, obtained from the civil authorities the death returns of infants under one year of age. The diseases from which these infants had died were classified as having been "probably preventable" and "probably non-preventable." An analysis showed that a large proportion of the infants had died within the first month of life from "probably preventable" diseases.

Mr. Benjamin Broadbent, of Huddersfield, saw in this statement a weapon with which to strike a blow for the babies. He accepted the office of Mayor of Huddersfield in order that he might act with authority. He offered a sovereign to each baby born within the year of his Mayoralty who should live to be one year of age. Mr. Broadbent then organized a company of ladies who would act as volunteer health visitors. The parents of a possible candidate for the sovereign must at once notify the Medical Officer of Health of the baby's birth. Within a few days one of the health visitors called and gave such instruction as seemed necessary to each mother as to the care of her baby. The results showed such a decided drop in the death rate of Huddersfield that Mr. Broadbent conferred with the Registrar General on the need of securing earlier notification of births throughout the land. It was a suggestion of the Registrar General that a notification to the Medical Officer of Health should be made in order that the needed preventive work might be done, but that this notification should not interfere with the civil registration. Parliament was appealed to, and the Notification of Births Act passed, "making it a punishable offense not to notify the birth of a baby within thirty-six hours." It provided that "A local authority may by resolution adopt this Act."

In those cities which have adopted the Act from 93% to 99% of the births are notified to the Medical Officers of Health within three days, and this intelligence is immediately passed on to the Health Visitors. There are now more than one hundred and twenty-five health organizations, the purpose of each of which is to help safeguard the life of the new-born baby. Some of the organizations work directly under the Medical Officers of Health.

Edinburgh and a number of the other cities which are working under the Notification of Births Act, require that the Maternity and other hospitals in which babies are born, shall send the address of the mother, when she leaves the hospital, to the Medical Officer in order that the Health Visitors may call upon the mother at once.

The value of the Notification of Births Act is shown in a circular sent to the sanitary authorities throughout England and Wales by Dr. Arthur Newsholme, on August 18, 1911. The title of the circular is "Prevalence of Epidemic Diarrhoea Amongst Children." The circular was addressed to the Town Clerk or The Clerk to the District Council, and is as follows:

> The Local Government Board have had under their consideration the excessive child mortaity, especially from diarrhoea and enteritis, which is accompanying the very hot and dry summer of the present year. They realize that some excess of mortality over that occurring in cool and wet summers is inevitable; but they desire to impress upon the Council the importance of taking such special steps as are practicable with a view to minimizing the excess.
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> The Board are aware that in a large number of sanitary districts special efforts are made each summer to remove the nuisances and other conditions which favor excessive mortality amongst children. They suggest the following lines along which it is most important that action should be taken, but they do not wish it to be understood that this advice covers the entire ground or that it does not need to be supplemented by action directed towards the special needs of individual districts.
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> Firstly, it is important that exact advice should be given as to the feeding and management of children, and more generally as to preventing the exposure of their food to contamination from decomposing organic matter. The distribution of clearly-worded leaflets is useful in this connection; but even more important are personal visits and the offer of practical advice to the mothers of babies born within the last twelve months. Exact and simple instructions are most likely to be followed if given during a period of special danger. In districts and towns in which the Notification of Births Act has been adopted, the records obtained under that Act will give valuable information in selecting the homes to which visits are now most urgently required.
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> Secondly, the full value of the personal instructions indicated above cannot be realized unless vigorous efforts are made to prevent the accumulation in or in the vicinity of the house of

decomposing animal or vegetable matter. It is not necessary to do more than mention the importance of efficient scavenging, of frequent and, if possible, daily removal of house and stable refuse, or domestic cleanliness, and of keeping all food properly protected. The Council may consider it advisable during the next few weeks to divert the sanitary inspectors from less urgent work, and to instruct them to make rapid visits with a view to securing efficient sanitation, especially in and about the houses of the working classes.

Thirdly, it is important that the Council should promptly ascertain in which parts of their district diarrhoea is especially prevalent, and should devote close attention to street and court scavenging and to the removal of stable and domestic refuse in these areas. Without waiting for the weekly death returns, efforts should be made to obtain information of cases of diarrhoea from health visitors and others who make domestic visits; and to impress upon parents the importance of immediate treatment of infantile diarrhoea. Apart from the medical notification of cases of epidemic diarrhoea in children, the visits of health visitors can be utilized for impressing upon parents the seriousness of diarrhoea amongst young children and the desirability of information being given to the Medical Officer of Health should a case of diarrhoea occur.

The Board will be glad if the Medical Officer of Health, in his annual report dealing with the current year, will set out the course of action adopted in the district to prevent diarrhoea and child mortality generally, in the special circumstances of the present year.

I am to request that you will at once hand the additional copies of this circular to the Medical Officer of Health.

It will be put on sale and further copies can be obtained from Messrs. Wyman and Sons, Ltd., Fetter Lane, E. C., either directly or through any bookseller.

The statistics show the value of the preventive work which was carried out according to the suggestions made by the Medical Officer of the Local Government Board. Dr. Duncan Forbes, the Medical Officer of Health in Brighton, requested the health visitors to sort the records of the babies in their care, and to note such as were under-weight, or not gaining, or especially delicate. Special attention was given to these babies lest they be the first to succumb to the epidemic diarrhoea.

While the Notification of Births Act has been of practical value, the background furnished by the complete Birth Reg-

istration is constantly shown to be indispensable. In Birmingham "the registrars periodically examine the list of notified births to find any case where registration has been neglected. They also obtain from the registrar's returns the names and addresses of the persons who have failed to register births. The Medical Officer of Health, Dr. Robertson, then sends a note to such parents. He also sends a letter to physicians and midwives who have failed to send in notification, in which he says:

> The Health Committee interpret the act to mean that primarily the parent is responsible. At the same time they would feel very greatly obliged if you would remind your patients of the obligation under which the act puts them, particularly they would draw your attention to the section which says: "Any person who fails to give notice of a birth in accordance with this section, shall be liable on summary conviction to a penalty not exceeding twenty shillings."

Schools for Mothers

First among the educational forces at work in England may be mentioned the Schools for Mothers.

In nearly all the large cities in Great Britain there are schools for mothers where the very poor may have the very best instruction in infant care. In six cities these schools for mothers are under municipal control, and generally the Medical Officer of Health takes a leading part in the work of the schools. As the Health Visitors, or Nurses, and the Sanitary Inspectors, as well as the Public School Nurses, are generally working also under his control, there is close co-operation of these various agencies.

An Infant Consultation forms the basis of the work in the Schools for Mothers. Here a physician meets the individual mothers to give advice on matters of hygiene and feeding, but not on the care of sick babies further than to refer them to their own physicians or to some hospital or dispensary. The Health Visitor or Nurse or Sanitary Inspector attends these consultations, visiting the homes thereafter, helping the mothers to carry out the doctor's suggestions, and often bringing back to the physician facts which give him a clearer insight into the conditions.

In these schools lectures are given on the care of infants and of older children; also on food values and general matters of hygiene. There are sewing classes in which the moth-

ers are taught to cut and make garments. And then there are classes in cookery. As to the need of these Mrs. Humphrey Ward says: "It is not food that is dear and scarce in England, it is the mind to cook it with!" She goes on to say that the English woman of the lower classes "buys monotonously, omitting dozens of foods that she ought to include because she is quite ignorant about them, and meanwhile her own mind stagnates for lack of any real interest or variety in her housekeeping." Meetings for fathers are held in two places, in one of which the attendance reaches 60.

In addition to teaching the mother something of food values and how to cook food, cheap and wholesome dinners are given in many of the schools to expectant mothers and to those who are nursing their babies. In this way, many a baby has been able to go on with its own mother's milk who must otherwise have been weaned because the mother was poorly nourishd. Everywhere throughout all the United Kingdom special emphasis is laid on the value of maternal nursing, and those cities which do not provide dinners to enable the mothers to nurse their babies furnish milk either fresh or dried. Where this aid is not given by the municipality itself it is usually supplied by some infant welfare association. It is interesting to note that there is little printed matter distributed on infant feeding, the belief being that each mother should be instructed by the physician who sees her baby as to how it should be fed. In many of the Consultations a test feed is given to determine the amount of breast milk consumed by the nursling. This is done by weighing the baby before and after nursing.

The schools and the various other agencies, such as Infant Consultations, Dispensaries, Hospitals, all emphasize the need and value of caring for expectant mothers. Mr. John Burns says: "There are no streets in the world where women can be so isolated and alone as they can be in many of the poor streets in London. Now that symptomises itself in many ways. It deprives the expectant mother of that sisterly advice, that neighborly communication, that you get in the country, in the village and in the smaller town. If the big city destroys natural communication we have got to provide either out of the rate or taxes or out of love of each other, some effective substitute for that which the city kills."

The cost of carrying on the Schools for Mothers varies. Those which are under municipal control cost from $1,000 to $3,250.

Teaching Infant Care in the Public Schools

Another feature of the educational work is the teaching of infant care and management in the elementary schools of the United Kingdom.

In the year 1910, the Board of Education sent out a memorandum on The Teaching of Infant Care and Management in the Public Elementary Schools, signed by Janet Campbell, M. D. As a separate course in one school in Manchester there were lessons given on the following topics:

(1) Washing and dressing a baby.
(2) Feeding of Infants (natural and artificial).
(3) General management, including sleep, exercise, fresh air, signs of health and disease; indications for consultating a physician and dangers of the amateur doctor.

In the first lesson a wooden doll, jointed, was used to illustrate the method, the children bringing the articles of clothing from home, while in some schools the sewing work includes the making of baby clothes.

One three-year course in mother-craft takes up in the first year personal hygiene, the home management, etc.; the second year, home economics, and the third year, the management of infants, including their washing and feeding, preparation of bottles, etc.

In London, in one of the public schools, the girls of fifteen and over have one lesson a week on baby hygiene, including sleep, airing, food, teeth, ailments, dress, formation of habits, intelligence and playthings. These lessons are followed by class discussion. Practical demonstrations are held in a day nursery nearby, where from four to six girls go together, once a week, for six weeks. Here they are shown how to dress and undress the babies and how to bathe them and put them to bed. Also how to prepare the food and bottles. A teacher of the ordinary school staff gives both the theoretical and the practical work. The memorandum, which is from the office of Sir George Newman, states: "This teaching of infant management should be regarded as the culminating point of the teaching of hygiene throughout the school life available for all girls during their last year at least, in the elementary schools."

METHODS OF CARING FOR FOUNDLINGS AND DEPENDENTS

The statistics of the Foundling Hospital in London show that at one time the mortality of children under five years of age cared for in the institution was 69 per cent. Now no child

under five years of age is allowed to stay even a few hours in the institution. The babies on reception are placed out in cottage homes in Kent and Surrey under the supervision of the Medical Officers and cannot live in the institution until after they are five years of age. In 1910, out of 260 children under five years of age boarded out in the country, four died. In considering this very low rate the fact is to be considered that the babies for whom care was asked were those who survived the first week or ten days—when the mortality is so very high.

Mr. Claude Wright, the General Secretary of Dr. Barnardo's Homes, which is the largest charity in England dealing with infants, says: "Our experience leads us to the conclusion that a large segregation of babies under one roof is fatal to their well being and health, however carefully and well they may be looked after; therefore, all babies that come under our care are boarded out immediately."

It is difficult to generalize on the care given to the babies in the various work-houses in Great Britain, as the Board of Guardians for each work-house determines the policy of that institution. In some of the work-houses every effort is made to keep the mother and baby together; in others, the mothers are allowed to leave their babies in the work-house. Any foundling baby may be received in a work-house and here again there is great variety of treatment. In some the babies are at once boarded out, while in others they are allowed to stay in the institution. The British Royal Commission on Poor Laws and Relief of Distress in its Minority Report of 1909, in the section which deals with Poor Law babies, recommends that "the maintenance of children in the work-house be no longer recognized as a legitimate way of dealing with them."

ROUND TABLE

Friday, November 17, 10.30 A. M.

EDUCATIONAL PREVENTION OF INFANT MORTALITY: CONTINUATION SCHOOLS OF HOME MAKING

(FIRST CONFERENCE)

Topic: Since the great majority of children leave school before sixteen years of age, and there is a considerable interval before marriage, should school boards create Continuation Schools of Home Making where girls (women) with grammar school education (more or less) can receive, even several years after leaving school, free instruction in housewifery, care of children and related matters, thus bringing instruction near the time when it is needed for use? Outline a course for Continuation Schools of Home Making.

CHAIRMAN

HELEN C. PUTNAM, M. D., Chairman of Committee of the American Academy of Medicine to Investigate the Teaching of Hygiene, Providence

SECRETARY

ABBY L. MARLATT, M. S., Professor of Home Economics, University of Wisconsin

CHAIRMAN'S INTRODUCTION OF ROUND TABLE DISCUSSION*

We are this year but superficially touching some of the main points of a large and vital field of education. It seems necessary to consider the general problem in order properly to orient the particular details that this Association for Study

* No papers were read in this section. Each leader in the discussion who had sent an advance resumé of his argument received copies of all resumés not less than two weeks before the annual meeting.

and Prevention of Infant Mortality needs to promote in such education.

The continuation schools of homemaking that our topic proposes should be sharply distinguished in certain points. They concern girls and women of marrying years, even married, not children of grammar schools, except as they may indirectly influence the elementary ideals and curriculum. They concern the well-to-do, not the poor alone; the fairly well educated as well as the little educated; those earning wages and those not doing so.

The discussion is concentrated on formulating the follow ing resolutions of unanimous opinions. It is hoped to take up next year certain details of instruction for which this Association may reasonably feel some large degree of responsibility.

Resolutions from the Round Table on Continuation Schools of Home-Making unanimously adopted by the American Association for Study and Prevention of Infant Mortality, November 18, 1911:

Inasmuch as our infant mortality rate is unnecessarily high (estimated by one Federal authority as 22nd, by another as 18th in the list of 31 civilized countries, although in national wealth we easily lead all), and

Inasmuch as this is largely due to lack of education of young men and women for parenthood, homemaking and care of children, and

Inasmuch as the very great majority of pupils leave school before the age when this instruction can be effectively completed, and rarely have a later opportunity of receiving it, being often deprived of proper education in parental homes by ocupations, environment, or social conditions,

Therefore, be it resolved, That the American Association for Study and Prevention of Infant Mortality petition each State Board of Education to appoint a Commission on Continuation School of Homemaking, to consist of men and women technically qualified in home economics, sociology, school administration and medicine, to study conditions and needs in the State, and to report effective plans for meeting them through such continuation schools and classes.

Be it also resolved, That the Executive Committee send a copy of this Resolution, together with a brief

summary of the conference leading to it, to each State Board of Education and to two leading newspapers in each State.*

Resolved, That such schools should be conducted wherever possible in model houses or flats, in addition to class room work; that care of infants, children and the sick be practiced in connection with homes, day nurseries, asylums, hospitals, kindergartens, visiting nurses, children's summer outings, or in other practical ways.

Resolved, That special effort be made to create day continuation schools, as well as or in preference to evening schools, and also to secure co-operation of employers in arrangements for part-time schools.

Resolved, That the Association be requested to continue the discussion of this topic at a future meeting.

The special interest of this Association is in the possibilities of developing through public schools (including continuation) a popular intelligence concerning parental responsibilities that will raise our infant mortality rate, estimated by different Federal authorities as 22nd and 18th in the list of 31 civilized countries, to a place among the best ten at least. Since we lead all in national wealth, a corresponding leadership in vital statistics is a logical ambition. In the last ten years about 2,000,000 babies born alive have died in their first year, with possibly as many more at and before birth; about 4,000,000 children died under five years of age.

To effect this improvement in heredity and environment, their influence and their modification must be better understood by all who may become parents. Regret is expressed by a large proportion of the experts invited to assist in our discussion that our topic does not include also the preparation of boys for homemaking. One well-known educator and social worker as well writes: "I am sick at heart sometimes over the struggles I see women making in the face of ignorant brutalities thwarting them at every turn. We must get at the boys." This recalls the question a working woman in a large class asked me: "I know the baby, and the children, too, ought to have fresh air to sleep in; but my man wants the windows shut and he wants to smoke all the evening. If I won't have it, he'll go to the saloon. What can I do?" A murmur indicating that this is not an unusual experience

* The resulting co-operation by some of the leading newspapers, and the replies from many State Boards have been encouraging. April, 1912.

went around the room. The economic, educational, social, and domestic authority growing out of men's political control in most of our States makes their education in biologic laws specially urgent in the face of our infant mortality rate and all that implies. If babies were well born and well cared for their death rate would be almost negligible. The infant mortality rate measures the intelligence, right living and health of fathers and mothers; the standards of morals and sanitation of communities and governments; the efficiency of physicians, nurses, health officers, and educators. Our measure has been stated. At some other time we should give the education of boys for homemaking due consideration; meanwhile there are a few suggestions in the following pages.

One unanswered question asked by several is: Shall instruction in homemaking be urged in trade or industrial schools for boys and girls together, with the purpose of securing some amount of mutual interest, and of including boys in certain classes? Where else can these future fathers get the instruction? All school laws require physiology and hygiene taught, but it is not in many of these schools, as it often is in other kinds of special schools.*

A vital detail relating to these schools was touched at the annual meeting last year in this topic: "Healthy parents, right customs and wholesome environment being essential factors in preventing infant mortality, how are normal institutions fitting teachers to establish through public schools better practices in hygiene and sanitation and higher ideals of parenthood?" We concentrated in a resolution urging the pacemakers in education, boards examining and licensing teachers, to "give as detailed tests in elementary hygiene, sanitation and biology as in mathematics and languages." † Continuation schools of homemaking will demand a much larger number of instructors qualified in these and related directions, and our problem of efficient teaching will be one requiring many kinds of temporary expedients, some of which are indicated in the undertakings mentioned by speakers, particularly those in rural and village communities. The methods must be sufficiently flexible to meet as many as possible of the needs not met in our regular schools.

According to the Federal statistics of 1900, the number of women between 15 and 19 years of age was 3,811,344; between 20 and 24 years of age, 3,718,110; a total of 7,529,454 women

* Jour. Am. Med. Ass., Dec. 23, 1905: Laws Concerning Teaching Hygiene.
† A reprint of this discussion can be purchased (20 cents) by addressing the office of the Association at 1211 Cathedral Street, Baltimore, Md.

between the ages of 15 and 24. The number of female students above the elementary grades in public and private educational institutions of all ranks reported to the Bureau of Education was 402,032; the number of female breadwinners between 16 and 20 was 1,237,967; between 21 and 24 years, 898,478; a total of 2,136,445 women between 16 and 24 earning wages, nearly one-half (44.2 per cent) of the total number of women wage-earners. Only 24.2 per cent of these were domestic servants, a percentage markedly tending to decrease. The total number of students and breadwinners was, therefore, 2,538,477, leaving 4,990,977 young women, neither students nor breadwinners, eligible for these schools as well as for marriage. The present census will add to these figures. If we assume that students above the elementary grades need no further instruction in homemaking (*i. e.,* that all high schools give enough, which is not a fact), and if we assume that by making instruction in homemaking compulsory an equal number will get it through private courses, there are approximately nine times as many young women between 15 and 19 eligible for our continuation schools in homemaking as are in the high schools (303,044 in 1900).

According to testimony from Boston and Chicago, there is an eager fraction of the two million wage-earners who are thronging our few evening schools, with a multitude outside asking similar opportunities for training in household arts. This is an interesting contrast to many recent reports on evening schools in England and in this country, where it has been discouragingly difficult to fill evening classes of boys, and to keep up attendance. Interest seems the crucial factor, fatigue perhaps ranking with it, and competent instructors not already wearied by a day's work are found essential for older classes. For pupils from 16 to 20 it is still an open question whether so good evening work can be done that it should be encouraged by preference. In this connection part-time schools are suggested, and among "employers" are to be included housekeepers who may be willing to make such arrangements. In such cases pupils would have opportunity out of school to practice the instruction received, a condition corresponding to trade school requirements. There are many domestic possibilities here.

Certain speakers urge that these schools be made compulsory, since all liable to become parents should be fitted for their responsibilities. Further education for pupils more than quadrupling the number of girls in the present grammar grades means an outlay in money and makes a demand on educators

that justify the question, Can our present teaching be better adapted to this vital demand for better prepared parents, so that additional courses need not be so extensive in order to be effective? This is pertinent for both boys and girls. It is the experience in many places with compulsory education laws that school attendance is not so good as where there is no such legislation. Apparently they cannot compel, as prohibition is said not to prohibit, because in one case the bar is too attractive, and in the other the school is not attractive enough either to children or to parents. Rhode Island, so often described in the superlative degree, has compulsory education from 7 to 14 years of age; but has the smallest rate of enrollment of the school population (5 to 18 years) with the exception of five Southern States and according to the United States study of woman and child wage-earners in 1907, it has the largest percentage of boys and girls between 10 and 15 who are wage-earners. The State has, too, the highest infant mortality rate and per capita wealth in manufactured products.

Trade and industrial schools have developed already so far under the stimulus of business interests that numerous precedents and distinctions have been established influencing the creation of continuation schools of homemaking. In order to work effectively for our special object, education of better parents of better generations, it is desirable in this first conference to consider some of these precedents and distinctions. Twenty-nine States, 25 since 1900, have legislated for practical education, 11 including homemaking (home economics) specificly, and appropriating funds for local assistance. The United States Department of Agriculture has long been fostering the subject, the monies given for agricultural institutions often including provision for home economics. It is a fair question whether such Federal assistance could not also be given continuation schools of homemaking under the control of State Boards of Education, since better homes and lessened mortality rates are a national concern.

Considerable municipal legislation providing courses in homemaking exists. The most desirable method of establishing continuation schools as a part of the public school system seems to be through State initiation, State subsidy and State control, parallel to the control given by the State to other public schools. The Twelfth Bulletin of the National Society for Promotion of Industrial Education and the American Labor Association, upon Industrial Education, issued in 1910, encourages the commission method of beginning in either city or State. In six States the legislature, perhaps stimulated by

the commissioner of education, or recommended by the governor, has authorized one or the other of these officials to appoint a commission, perhaps specifying certain details or requirements, to study conditions and needs in the State, and to report back to the legislature effective plans for meeting them through practical education, it being desirable to utilize all existing means and to create new ones only when necessary. All of these Bulletins should be read by those interested in establishing continuation schools of homemaking. The second contains an excellent bibliography of industrial education up to the year of publication, 1907. A later more extensive bibliography, together with a very full discussion of practical training in public education, is given about three hundred pages in the Proceedings of the National Education Association, 1910. In addition to these two sources of information, there have been issued within the year the Wisconsin Report of the Commission upon the Plans for the Extension of Industrial and Agricultural Training, with its stimulating discussion of foreign methods; the Report on Education for Industrial Purposes, by John Sheath, superintendent of education, Ontario—an interesting feature being its statements from employers; also the Annual Report (1910) of the Chief Medical Officer of the Board of Education, England. During the six months I spent in 1907 studying the teaching of hygiene in England's schools, the tendency seemed to be to encourage compulsory instruction in homemaking and infant care, and this latest report again encourages the idea. With this wealth of material of easy access, it is not desirable to duplicate in connection with our discussion.

One very significant point with reference to the considerable part of this literature that I have been able to review is that the particular topic with which we are concerned receives by no means the elaboration given other practical education. What profits it to lead in wealth, and rank with the worst in waste of child life and of parenthood? This neglect of training for the vocation of homemaking is not, I am confident, so much from callousness as from need of co-operation and stimulus from those whose life work is on problems of infancy, care of children, hygiene, eugenics, and other biologic, sociologic, and domestic aspects of life. It is an essential mission of this Association, in which this section is a special agent, to seek the correlation of this latter class of knowledge with the forces making public schools, until this viewpoint becomes definitely recognized and its aim effectively promoted in education for practical activities. The motto on the walls of

every schoolroom (and of every school committee room) might well be: "Life is a Trust, received from many who have gone before, to be guarded and bettered in one's turn, and passed along to many after." It would substitute a comprehensible altruistic motive for vocational faithfulness that can be made appealing even to the age of dolls. "Heaven" is out of sight. Parents and children are in evidence, their testimony reaching openly toward infinite responsibility in the past and in the future, with definite duties in the present.

ADDED IN DISCUSSION:

Dr. David Snedden, commissioner of education in Massachusetts, has kindly informed me of some of the State experiences relating to evening schools, that are instructive. One of the results of the Massachusetts commission appointed in 1905, the first of these commissions, has been the establishment of evening industrial schools, under State control and having State aid. It has been decided that this legislation intended to increase the efficiency of men and women in vocations in which they are already employed. These schools have been thronged with young women of seventeen years and over eager for training in household arts for their own home use. Under this law as now interpreted, the State aid was not intended for this class, and he has been obliged to exclude them gradually. The question is whether it is desirable to expand these evening schools (by further legislation if necessary), permitting them to instruct in subjects in which the pupil is not engaged by day, the day and evening work no longer supplementing each other as at present; or should there be another type of evening school established? At a conference last May of educators, social workers, employers and others interested in this matter, details were touched on that are brought up by several at this round table. Some of the questions are whether there is a sufficient demand for evening schools in household arts to justify legislation and State aid; whether it is wise to encourage young women, after exacting days, to attend evening classes, and how many hours should be required; whether such evening work, with its limitations, could be made effective for women whose daily employment allows no practice in the household arts in which they receive instruction; whether their homes could be utilized for such practice under the direction of the school; whether local communities would provide effective evening classes in homemaking without State aid and control.

It was fully agreed that the demand for household arts training by factory, shop, store and office girls is greater in any given community than the demand for training by any other type of worker, male or female. There was agreement on the large social value of such instruction, and that training at seventeen or over will yield larger returns than similar training at any earlier period, since it will be given when the homekeeping instinct has become a strong factor in their lives.

There was, I am glad to say, special interest in part-time schools. The legislature has directed an investigation (now proceeding) and report looking to the division of working day or working week between school and shop. "From a physiological standpoint it seems inadvisable to encourage girls of such immature years to attend evening classes after a long and exhausting service in the shops during the day. It does not seem possible at the present time to secure through voluntary co-operation between the school and the employer any portion of the time which such girls now devote to their employment for after-training in homemaking. We need to know more about the present status and conditions of employment of these girls before we can discuss with profit the kind of instruction which part-time classes should give to them, whether under a voluntary or compulsory co-operative scheme that secures a portion of their present working period for after-training."

On the value of this method of spending the evening for some working girls there is very clear testimony by several present. That others can do better with day instruction is equally true. In this, as in other details with several aspects, it is fitting that a conference having the interests of the whole country in mind should advocate sufficient elasticity to meet all needs, providing we retain a standard of efficiency that will endure the final test of our statistics of infant mortality.

PROF. ABBY L. MARLATT, Department of Home Economics, University of Wisconsin:

Even a cursory survey of the present social conditions demonstrates the need for more concerted effort in preparing the woman of today for more intelligent management of her home and the care and training of the children who may form a part of the home group. The hypothesis that woman is born with the instinct which will carry her through all of the amazing difficulties of conducting the machinery of the modern home and combatting the undesirable suggestions of

the present environment has proved altogether untenable. According to the definition given by a well-known scientist that hypothesis is a theory that will not work, this certainly answers the definition. The increase in the number of divorces granted, the overwhelming infant mortality as compared with that of the adult mortality, the increase of juvenile crime cannot be entirely traced to lack of training in homekeeping on the part of the woman alone. The condition cannot be laid to the door of either sex. It is a result of the inadequate training of both boys and girls.

The problem for discussion unfortunately today deals only with the continuation schools in home economics for girls. Continuation schools which deal with the duty of man as a home-builder are equally important. Granting the need of training, the problem arises as to what agencies may best be called upon to inaugurate the work. Privately supported institutions have attempted, and to some extent have done satisfactory work in the training of the occasional girl in some phases of the subject, but a concerted movement which is intended to reach all girls and women who may desire the special training has not been attempted. The training in domestic science in our public schools today reaches but a small number, and covers, in the majority of cases, only the subjects of clothing and food, with occasional talks on house sanitation and house management. The whole problem of the study of the child, with its care and physical and mental hygiene, is omitted. If the work is to be done with any degree of unity, the city or the State should stand back of it, not only in the way of moral support, but with financial aid. Taking the existing agencies which may be used, we may list the day nurseries and kindergartens, high schools, night schools, trade schools and summer schools in the cities. In towns there may be offered continuation schools in connection with the high school work, so that those who have graduated from the grammar school or the high school or who have reached the age of sixteen may take this special professional training without necessarily entering as a student in all of the prescribed courses of the high school. To reach those in villages and in the country, the most feasible plan at present seems to be the utilization of the extension work as found in connection with agricultural colleges. The work in Kansas, with its movable schools, home economic clubs, institute work and chautauquas, is one of the best examples of what the State may do for small and isolated communities.

"London has a unique school for the teaching of motherhood. It is under the management of the Woman's Industrial Council of England, and teaches the theory and practice of managing children of tender years. The training on the theoretical side includes instruction in elementary physiology and hygiene, with special application to the care of infants. Practical lessons are supplied by the care of infants and small children of working mothers who leave their children in the school to be cared for while they are at work. There are a trained nurse to teach the pupils how to wash and care for the child, a graduate cook to teach how to prepare the food, an experienced needle-woman to show how to cut and make correct clothes, a trained housekeeper who teaches the best methods for cleaning, etc., and a kindergartner to teach how babies may be healthfully amused."

France, in connection with her "consultations de nourrissons," is giving some aid to the mother in training her in the care and hygiene of the infant. Germany has her schools of home economics which are attended by all classes of girls regardless of social status or income. She also has her continuation schools in the trades which are open to women. In our country we have the classes in the Young Woman's Christian Association and in the Social Service League which reach a limited number. We are doing more for the child of the foreign-born than we are for our own American citizens. In many ways it is possible they need it more, but those of us who have studied the situation believe that it is only a question of degree.

The subjects which may be taught in these continuation schools in home economics are the hygiene of clothing, the economics involved in the selection of material, the practice to the point of skill in the manufacture of clothing with the special study which will enable the student to determine when it is economical to make the clothing at home and when social and economic conditions are such that it is wiser to purchase the ready-made. The study of foods should be along the lines of understanding not only the process of cookery and the preparation of food to make it more attractive, but also a knowledge of food values not only economically but physiologically, so that the girl will be able to utilize her income to the best advantage, and so that the food will conduce to the efficiency of the family.

The problem of hygiene, not only personal, but hygiene in the home, should be an important part of the course. The hygiene of the house and hygiene of the food, while very

important, should rank in time given to them with the hygiene of the child, that being the important part of the instruction. The training in the care of children, in the psychology of habit formation, may be given in classes in high school with very great profit. The problem of household management, with its division of the income, its keeping of accounts, and its management of the complicated machinery of the modern house, is taught most easily in practice cottages. There is no reason why the practice cottage, with its modern plumbing, heating apparatus, and water supply, and labor-saving devices, should not be as much a part of a domestic science equipment as the expensive machinery that is installed in connection with courses in manual training in wood and iron. One does not teach engineering today without having an engine to practice upon. On the same principle, one should not teach household management by words alone. The fact that the girl came from a home does not mean that she has learned to care for that home in the most economical way and save her strength or the strength of other people who do the work. It usually means that she is running the machinery with the least efficiency, and the result is often the breaking down of the housewife, not because the work is too hard, but because of the nervous strain of working ignorantly.

The method of inaugurating this form of instruction may include the establishing of continuation schools in connection with the day nurseries which, in the poorer section, should also be the kindergarten for the city schools. In this way the care of the child may be shown in actual practice under competent nurses who have charge of the day nurseries. For professional workers there are courses, in Boston and New York, for example, in training girls as child nurses. These courses are not long and the girl is offered practice in taking care of the child. There is no reason why the day nurseries of any city should not have in connection with them a school in which any girl or woman may go for instruction and practice.

The knowledge of kindergarten methods should be a part of the ideal education of every mother. Today only those who are trained in kindergarten teaching are so equipped. The result is that during the formative period, which is so important in the life of the child, it is not the mother but the substitute mother who has the joy and responsibility of training the young mind, thus taking away from the mother one of the greatest pleasures of the home life. While it is acknowledged that the trained kindergartner may be able to

give this first instruction better than the average mother, we must remember that the trained kindergartner has the child for usually not more than three hours a day, while the untrained mother has it for the remainder of the period. The fact that in the wealthier homes the mother's place is often taken by the trained children's nurse does not alter the argument.

In the girl's trade schools like those at Milwaukee, Boston and New York, there is an excellent opportunity to train the girl in many of the problems connected with the home, at the same time giving her a trade which will enable her to support herself. The trade school at Milwaukee, one of the best in the country, gives training in the preparation of food which is used in the school lunchroom, so that every girl has an opportunity to study the expense problem as well as to have practice in the actual preparation of food. The division of one of the larger classrooms into a kitchenette, a dining-room, a living-room, a bedroom and a bathroom offers a working model of the apartment-house, in which some work in household management and sanitation may find concrete illustration. If to these two lines of work is added a third of the care of the child (as I hope will be soon), then the girl who goes from such a school into the business world will be equipped, not only for her trade, but also when she wishes to leave the trade for the profession of homemaking she will have a foundation of accurate knowledge on which to build.

Summer schools like those in the public schools of New York City may be devoted to the teaching of the problems in connection with the home life. As a rule, the girls who attend these are younger than the class which we wish to reach, but there is no reason why the summer school should not encourage the older girl to take up the work in domestic science. Graduate courses in home economics offered in our high schools will give an opportunity to the girl who has devoted her high school period of preparation to the acquiring of a knowledge of the classics, an opportunity to fit herself in a measure for the care and management of a home and children within the home. The safeguarding of the home life through the restricting of marriage to those who are socially fit may in time lead to the requirement, not only that the man be able to support a family, but that the future husband and wife shall show evidence of being able to care for not only the home but the children who may become a part of it. While this may put the profession of homemaking on a civil service basis, it will be but going farther along the

line of regarding homemaking as a profession for which the State must provide adequate training, if not in some of the ways suggested, certainly in some way which is adequate.

ADDED IN DISCUSSION:

Localities in Kansas, also farmers' State institutes, since 1896, have done some continuation work in homemaking in rural communities. Recently the State is also working through an extension bureau of the agricultural college. It has continuation schools of one week in small towns and villages, each being required to guarantee at least fourteen girls as pupils, each girl paying one dollar for the week's material. At three o'clock in the afternoon the girl's school ends and a class of women have lectures on domestic science from the teacher.

This has so waked up Kansas that now a teacher's certificate requires the woman to be able to give instruction in domestic science and the man in agriculture. Wisconsin is following Kansas in these one-week village schools, having already had, as some other States, continuation classes for men and for women in connection with agricultural colleges. The university hopes to have such classes in connection with a practice cottage opening this year, where regular students in home economics are housekeeping. The care of children and infants and child study are part of their work.

Dr. FLETCHER B. DRESSLAR, Specialist in School Hygiene and Sanitation, United States Bureau of Education:

The plan that has been suggested for the development of continuation schools for the preparation of girls to undertake the duties of homekeeping deserves careful consideration. In the first place, it does not imply that the common schools as they are now organized, are failing of their purpose, even though they do not, during the regular term, give the girls practical drill and information in things relating to the more technical business of the home. The chief province of the common schools is to give the children a knowledge of those common subjects which vitally relate to all phases of life. All must learn to read and write, all must have skill in calculation, and be able to use the English language with some degree of fluency and acceptability. All need some knowledge of American history and general geography, and they must have some practical conception of general hygiene.

These are fundamental to any worker whether in the home or in business affairs, in the school or out of it. There is no doubt, however, that many of the subjects taught in the school could be more successfully taught if properly correlated with the immediate affairs of life. For example, arithmetic could be correlated with market prices and home accounts; geography and history with current events; hygiene with home life; and reading and writing with all. But such correlation, even if thoroughly done, would not meet the demands for special training girls need when they come to the management of the home. The sewing and cooking which can be taught in the regular elementary schools will need supplementing and to be brought into more intimate relation with the demands of a home.

The problem you are now seeking to solve is a new problem. It is the product of changed conditions in society, especially in the cities.

Girls ought to be taught to do these things by intelligent mothers, and this was the case formerly. But home life has so changed, especially in the cities, that many mothers neither know how to cook, nor have they any desire to do so. Others who are obliged to cook are often compelled to do it under great difficulties. They do not know how to market to the best advantage; they buy in driblets and with comparatively little thought of values and physical needs. They have meager knowledge of the laws relating to the proper care of children, and of hygienic living in general. In a word, they come to the honorable and responsible duties of the homekeeper with little or no direct preparation for it, and consequently they must struggle through mere empirical methods to learn its essentials, or else they get along day by day hoping for some change on the morrow, some fortunate turn which will relieve them of the burden of their blind endeavor. It is safe to say that the number of those who take a deep and intelligent interest in the essential requisites of happy home life is far too small.

Here is a vital problem which the conditions of modern life have imposed on society. It is not paternalism on the part of the school to attempt its solution, for it is now out of the hands of the city home to a very large degree. Public education must meet it, and if possible so direct and instruct as to reinstate in the home that consciousness of duty which will cause the future mothers of this nation to count it one of their holiest obligations to teach their daughters the science

and art of housewifery. Besides, the arts of homekeeping, as all other worthy arts, are subject to improvement, and it is the duty of public education to bring help in the way of scientific knowledge to every possible detail of such work.

There are two things, then, that I want to emphasize in this connection: First, under modern demands home life will degenerate unless intelligent guidance and specific instruction in its duties are speedily furnished; second, homekeeping has a right to demand that the results of science should be made serviceable in the home, and that, in all its multiform activities, it should be bettered by the intelligent application of these results. The purpose should not be that of trying to re-establish what has been done, but of learning the best way now attainable. Housewifery has as much right to progress as agriculture or any other pursuit. Science must be utilized and developed for this great business, just as is done in any other business. Hence, from this point of view, it is no more paternalistic to teach girls scientific cookery, nursing, marketing, etc., than it is to teach the farmer how to grow a better field of corn than he or his father ever grew.

I wish, therefore, to make three statements which I hold to be true: First, The duty of the common schools is primarily to teach children to read, to write, to calculate, to gain facility in the correct use of the English language, to know in some vital way the ideals of our moral, civic, and literary heritage, and to know the fundamental laws of health. Second, It is not paternalism for the schools to undertake to instruct our girls, or, for that matter, the boys, in any necessary function, the teaching of which is being neglected at home. Third, It is the highest duty of the State to try to bring to all fundamental duties of life the aid and guidance of all advancement in science and its application to the problems of life. Hence I look with favor on this attempt, even if the efforts are foredoomed to issue in mediocrity. The highest kind of intelligence and culture is needed to make the home what we would have it. Personally, I would rather eat soggy biscuits once in a while, served with musical accompaniment, than to eat every day the best of cooking with no music in the home. I would prefer a breakfast of porridge and dry toast, associated with refinement and high thinking, to one far more stimulating to the salivary glands, when served to meet the demands of mere physical existence. Do not therefore conclude that the majority of the girls who would take such a course as you have in mind would or could make

ideal home life. That can come only through the happy combination of culture and technical preparation. The completion of a college course, with technical study of housewifery in addition, all combined with uncommon sense, would be necessary to meet the demands of the ideal. But while we must not let this ideal slip, we must make the most out of practical conditions as they now exist and will exist for a long time to come.

May I then address the rest of my time to practical details? Suppose you had such schools organized everywhere, what would you teach the girls, and where would you find your teachers?

Let me suggest a whole curriculum in one question: What is the best apportionment of an income of $15 a week for a family of four? This suggestion came to me when I was visiting a school for the children of workingmen in the north of London. The only difference in the question the girls there were trying to solve and the one I have proposed to you would disappear if you were to substitute 30 shillings, or $7.50, for $15. Suppose you set a class to work to solve this problem; what would they have to know? First, the house must be rented. The moment they go to examining houses (and the students of whom you are thinking must be taken to see and taught how to examine a house), that moment problems of health and morals present themselves. Here they must weigh health against the few dollars at their disposal. They must measure moral influences against mere convenience. During such visits, lessons in hygiene can be taught more effectively than in schoolrooms. House plans could be discussed and drawn, simple decoration could receive treatment, and the elements of taste could be emphasized in an effective way. When intelligently understood, the house in which we live has much to do with health and successful homemaking. If you take a house for $5 per week there are only $7 left. If for $4, $8. Which is better? Sunshine could be balanced against doctors' fees, loss of time, and extra cost of fuel. In short, the house problem is a large one. It consumes at least one-quarter of the income of decent workmen, and even more important than this, it has a large influence in real homemaking. Many tragedies result from lack of sunshine and fresh air. Many tired hearts would be rested if sunshine and fresh air could be purchased.

The attempt, then, to answer the question of house rent picks up a great many life problems in a real and vital way.

But suppose these problems have been given due attention, another question arises, viz., How much should be spent on foods? Here the problems of marketing, relative food values, cooking, and all the economics connected therewith arise. It is amazing the amount of ignorance that is displayed in matters of market values, and here the man of the household is culpably negligent. If the workman on his way home, or before hours in the morning, would take the time to do most of the marketing, and pay for what he buys, many dollars would be saved in a month's time. But, generally speaking, women are better buyers than men, if they only insist on seeing before they buy. If they knew that cheaper cuts of meats are often more nourishing, when properly prepared, than those that cost more, not only could they save, but get better food. There is no time to specify in further detail. A carefully prepared menu for a week's meals is not an easy task, especially for those who have so little to spend for food. The training schools in domestic economy would do a great service if they would prepare a series of cards specifying meals and the probable cost of the materials, and some simple directions for buying and preparing the meals and scatter them broadcast.

If these young women you are planning to help had vision, they would not need your assistance. They do not, and will not, without some help, see a week ahead. In the whole problem of food supplies and marketing, there is opportunity for a liberal education. Chemistry, physiology, dietetics, and many other sciences enter.

The girls in the London school to which I referred go to markets with their teachers, and in a definite way attempt to answer all the questions relating to foods. It is a difficult problem to solve, and our girls and women need help.

But our $15 must go further than food and shelter. How much should we set aside for clothing, and how can this be most wisely spent? I found those London girls studying all sorts of materials, calculating their cost, their serviceableness, and their relation to good looks. Here come dressmaking, plain sewing, patching, refitting, cleaning, laundry work, dyeing, and a thousand and one things that only a capable mother could ever think of. I found them even learning to make the shoe polish for the use of the family.

What about furniture? They had made for the baby a neat and serviceable little bed out of a soap box. Its pillow, mattress, coverings, and dainty trimmings, all complete, cost

5 shillings and the interested labor they had put on them. But they must save something for fuel, light, books, church, against the awful possibility of sickness, and last, but not least, they must have a little margin for recreation and pleasure. Do you call this a hard problem? The Greek verb is easy compared with this.

The next thing to consider is the teacher. Where can you get her? She is not now to be had. She must be prepared. She will require much time for preparation, and a new sort of school in which to get her training. She must know all phases of homekeeping, and a great deal more. She must have a vision and an understanding beyond the bare outline of any curriculum.

I have no time for further discussion, and have intended only to bring out some of the larger problems connected with this topic. I believe continuation schools properly organized and properly taught would be of much service to that growing class of dependent working people whose home life has been greatly changed and dwarfed by the unnatural demands of city life and the exacting stress of modern commercialism.

But I wish to say in an emphatic manner that it is my belief that the ideal home life, if it ever comes, must result from that combination of culture and practical efficiency not likely to be found in continuation schools such as we now have in mind.

ADDED IN DISCUSSING FIRST RESOLUTION:

No two States are alike in conditions. This resolution would not effect the same results in the South or West, as, for example, in Massachusetts, a State of cities. We need to think especially of rural communities, the small village and the town. The resolution could do no harm, and might do some good in both cities and country places. State boards of education differ widely in efficiency.

But ignorance is only one factor in prevention of infant mortality. Infant mortality is largely due to economic causes. Why are huge tenements allowed? People are compelled to live in them. They are built because of greed on the part of wealthy individuals and corporations. Knowledge in the Socratic sense should correct this evil; but we do not live up to what we call wisdom. In spite of our knowledge of safe health conditions, the foreigners coming to us are crowded into these places, and hence high mortality among the children, and general distress among all.

ON UTILIZING HOMES:

The superintendent of schools in Crete, a small town in Nebraska, found that parents of high school girls wanted them to learn cooking. They could not afford a teacher of home economics. He appealed to the women. He arranged with Mrs. X., who had a special reputation for breadmaking, to take a class in her home; with Mrs. Y. to have a class in cooking meats, and so with others in other home details. These girls receive their lessons in a real home under normal conditions. They then practice in their own homes until they acquire skill. Those who do not come up to standard as shown in their exhibits are required to take more lessons. The plan works well in Crete and is beginning to spread. The housekeepers take more pride in their work than they would take otherwise, and they take more interest in those girls and the schools.

They did not undertake to develop a knowledge of the care of babies and children. Possibly in homes where mothers are obliged to go out to work such pupils could be of service and learn by doing. This plan may not be practicable everywhere; but it is worth noting for small places with very little money. Such housekeepers could be reported as high school teachers and might receive a small salary.

ON EVENING SCHOOLS:

No satisfactory conclusions in the question of fatigue of working girls with relation to evening schools can be arrived at by searching for a law of fatigue. No two persons have the same fatigue curve. There are two kinds, the normal and the abnormal. That "second wind" that has been spoken of is a dangerous thing if carried too far. By persistently working, you may become so wide-eyed that you cannot sleep. Nights should be rest periods, and due regard should be had at all times for the relaxing influence that comes with the night.

MISS ADELA BARRETT, President of the Practical Housekeeping Center at 813 Ewing Street, Chicago

Miss Addams has asked me to answer your letter because of my interest in the Practical Housekeeping Center across the street from Hull House, although not connected with Hull House.

The establishment of Continuation Schools of Homemaking will make a very great difference in the home life of those who take advantage of the opportunities offered, I am confident from our own experiences. I wish to urge that they be conducted in model flats or cottages as are our centers, of which there are two others in this city, one in Boston, and possibly others of which I do not know. Our Ewing street work is modeled on that of the Association of Practical Housekeeping Centers of New York, of which Miss Mabel Hyde Kittredge is president, and which has four centers now established in New York City. Miss Kittredge has just published a little book, "Housekeeping Notes," that will give anyone interested a quite definite idea of the work.

Our Practical Housekeeping Center is a four-room flat, furnished in a very practical, sanitary and attractive way at a cost of less than $200. There are classes for children in the afternoons and classes for working girls in the evenings, every day except Saturday and Sunday. A trained director teaches cooking and housework, and talks on hygiene and the care of children are given by the city nurses. The girls are taught how to prepare cheap but nourishing foods, in palatable ways, and they learn also something of the composition and nutritive value of food.

In teaching housework, the object is to show the simplest and best way of doing everything. The flat also affords an opportunity for giving valuable suggestions on simple, tasteful, economical furnishing. The advantage of giving this teaching in a home such as pupils might have themselves is that it requires no imagination to apply what they learn directly to their own immediate problems. In taking care of the flat the pupils learn to understand the work of a house as a whole and how to fit in the different parts, so that the best results in economy of time and labor may be obtained. They develop a personal interest and pride in the work that would be harder to awaken if the same things were taught in a large workroom. The sayings of the children themselves indicate this.

I want to quote a few of these to illustrate what I mean. One child said that she had taken cooking lessons for half a year at the public school and did not learn anything, but that what she had learned at the flat she knew. Another said she had taken cooking lessons at two public schools, but thought the flat was best because it was just like home, with no fancy little things to use. Another applied the lesson the nurse

gave about washing out sore eyes with a solution of boracic acid and cured the baby's sore eyes. One child, on cooking at home some left-over cereal in a way she had been taught at the flat, found her family so pleased with the dish that it set her thinking how she might cook other left-overs and have them equally palatable.

One of the older girls said she wouldn't miss an evening at the flat, even if she couldn't cook there, because the things she was learning about food—the composition and nutritive and money values—were so interesting. If she married and had children, she said, she would know what was good for them. All the girls seem anxious to come as long as we will let them.

If a model flat or house were attached to every public school it could be used for classes for children during school hours; after school, for older girls who had not begun to work or did not have to; and evenings for those who were working. Once these were established for school work, no added equipment would be necessary for the Continuation School. The expense would lie in the salary of the director, food, light, etc. It might, however, be necessary to begin at the other end, using the flats or houses first as Continuation Schools and by proving the success of this method of teaching induce the school board to have the Homemaking Classes in the regular school work taught in this way.

The chief objection that will be urged against this plan is the smallness of the classes. We feel, however, that small classes of eight or ten pupils are essential, as otherwise it is almost impossible to give the individual pupils the personal attention that is necessary to make the work of the greatest value. I realize that this plan would make it difficult to reach the whole number of girls, if each girl were given as many lessons as one would wish; but I feel sure that one lesson taught in this way would be far more valuable than several taught in the other way.

Of course, like every enthusiast, I wish that the financial side of the question did not have to be considered. Several flats, if necessary, in connection with each public school would solve the problem of reaching all the girls and teaching them the most important things a woman should know in the thorough and, I think, worth-while way.

Nothing is of such vital importance to the welfare of a nation as the right rearing of children, and the teaching of homemaking seems a fundamental necessity. To my mind,

however, it is of no particular value unless taught thoroughly, so thoroughly that it would be as impossible to forget as how to read or how to write.

ADDED IN DISCUSSION:

The center is open nine months; the salary of the director is $900. Some of our girls have married and used our rooms for models in furnishing their own. Young mothers sometimes bring their babies or little children whom they cannot leave at home and we teach them details of caring for them by a nurse or by the director, even bathing and dressing them. We hear of their carrying out these lessons vigorously at home. We shall do more of this. The city nurses give their help without pay. Young women sometimes say they would be ashamed to go to school for lessons, but this seems like visiting a friend who knows more than themselves. As our classes do not begin until afternoon, the director visits pupils' homes in the morning to help them adjust their lessons to home conditions. We have festivities and mothers' meetings. The ages of pupils are from twelve up. The whole success of a center depends on the personality and ability of the director.

Dr. EDNA D. DAY, Professor of Home Economics, University of Kansas:

Arguments for continuation schools to teach housewifery, the care of children and related matters:

I. Is such knowledge valuable? The knowledge and skill of a woman as a homemaker determines most largely:
   1. The health and even life of her family. (Hence such teaching would help to decrease (*a*) infant mortality and (*b*) the need for hospitals.)
   2. Its morals. (Hence tend to decrease (*c*) the number of delinquent children and (*d*) adult criminals.)
   3. Its material comforts. (Hence more men would dare to marry, and to do so younger. Therefore, (*e*) less unhappiness and strain of the unmarried and (*f*) less prostitution.)
   4. Its happiness. (Hence (*g*) fewer divorces.)

II. Can such knowledge be gained elsewhere?
   A. In home of parents?
      1. In the past before factories took work from home and girls went to school? Yes, by apprenticeship method.
      2. Now? Seldom well enough because (*a*) too little time—girls must go to school, etc.; (*b*) conditions have changed—grandmother's rules do not always work in these days; (*c*) few mothers know enough to teach general principles; (*d*) many mothers have not time: (*e*) many mothers have not inspiration.
      However, more can be learned at home than is generally done, and the school should urge that practice and discussion at home should supplement the work of the school. Work in both places is necessary for the best results.
   B. In home of husband? The vague plan of the majority.
      1. Too slow—expensive.
      2. Too dangerous, for first child, at least.
      3. Very unfair to all concerned.
   C. In grammar grades? Much should be taught, especially of that that can be applied at once, and so help in habit formation, *e. g.,*
      1. Personal hygiene—taught to all.
      2. Care of clothes—taught to all.
      3. Care in spending money with keeping accounts—to all.
      4. Cooking—taught to many.
      5. House sanitation—taught to many.
      6. Garment-making—taught to many.
      7. Laundry work—taught to many.
      8. Care of children—taught to many.

III. Advantage of teaching in continuation schools:
      1. Some girls missed earlier training.
      2. Those not having opportunity to practice have forgotten much.
      3. New interest in work.
      4. More can be taught.
      5. Help to divert the natural sex instinct of many young women from the too exclusive expression in interest in clothes and beaux into interest in preparation for homemaking.

OUTLINE OF WORK:

I. *Foods*—
- Dietetics
- Marketing
- Cooking

II. *Clothing*—
- Family needs
  - 1. Hygienic 2. Artistic 3. Social
  - (Psychology of fashion. Possible means of liberation from its tyranny)
- How to buy
- Sewing, dressmaking and millinery
- Laundry work

III. *Shelter*—
- Family needs, physical and social
- Means of attaining satisfaction
  - Building—renting
  - Furnishing
  - Keeping clean and in order most easily
    - (labor-saving devices — principles of mechanics)

IV. *Family*—
- Some history of home and study of its present social problems
- Eugenics
- Care and training of children at different ages
- Means of keeping self and family well
- Home care of sick
- Care of aged
- Economic co-operation of members of family
- Methods of keeping family accounts, principles of saving and spending, etc.
- The psychology of happy family life
- Methods of home recreation and inspiration to highest living

V. *Community responsibility of home*—
1. Direct influence of home
   - (*a*) Sanitary; proper disposal of household wastes, quarantine,
   - (*b*) Economic; responsibility for rented property, condition of street and sidewalk, safety of neighbors' property from chickens, children, etc.
   - (*c*) Social; social duties as neighbors and friends

(*d*) Artistic; attractive appearance of house and grounds
(*e*) Moral; due regard for conventions and public opinion, good example, etc.

2. Need of interest of homemakers in conditions under which goods used in home were produced and distributed, from the standpoint of health of family and well-being of workers, *e. g.*, dairies, factories, shops.
3. Interest in sanitary condition and moral influence of places where members of family go, *e. g.*, streets, schools, church, places of work, public amusements, etc.

ADDED IN DISCUSSING PRACTICE HOUSES AND PART-TIME SCHOOLS:

It is very important to have classroom instruction in principles and theory supplement practical work in houses and flats. Neither is sufficient without the other.

Professor Snedden has recently urged the importance of establishing vocational schools in which half time should be given to theoretical work in school and half time to practical work under as nearly trade conditions as possible. Some boys work in a factory one week and in school the next. In some agricultural sections of the country farm and school work alternate. In one school the boy is given a piece of land by his father for a certain crop. The school gives the necessary instruction for raising it. Or the father gives a cow, and the school gives instruction in dairying. School gardens are sometimes at home, and a teacher visits them to see how well the instruction is carried out. It would seem that this method might be very useful in teaching homemaking, especially for those phases not easily practiced at school, as the care of different rooms of the house, the care of children and babies.

Professor Amy L. Daniels, of the University of Missouri, regrets exceedingly that she cannot be present, and has asked me to plead in her name that continuation schools of homemaking be made compulsory. Every girl should be required to take a course in homemaking in a secondary school. All this voluntary education reaches comparatively few, and never reaches those who do not know that they do not know, and who are a large factor in unnecessary infant mortality. Along with work in trade schools fitting a girl to earn her living should be required work in homemaking. She should have a

minimum of six or eight hours a week for four years after leaving the elementary schools at fourteen years of age, with a forty-hour week in shop or factory, instead of a forty-eight hour week. This should be arranged and required for girls from fourteen to eighteen. The increase in the school budget will be met without difficulty, for the continuation school is but another type of high school arranged for the working boy and girl who make our homes eventually and the infant mortality rates directly and indirectly. Society can well afford to give assistance in any cases where the decreased wages from loss of eight hours works hardship, and they would not be many. Employers will find their work better done as the workers become more intelligent.

MISS MARY S. SNOW, Supervisor of Household Arts, Chicago Public Schools:

The ideal continuation school will be given in a house where the whole problem of housekeeping is real and on a scale of actual housekeeping. A laboratory fee covering the expense of everything except the teacher would be readily paid by working girls in much larger numbers than could be accommodated. These girls should have the care of the household, the preparation and serving of meals, the laundry problem, including all linen used the previous night, and a periodic lesson on the care of children, especially infants, and the nutritive problem of the family.

Classes could be easily broken up into groups so that a class of thirty, in four or five rooms, would have a laundry group, a group in metal cleaning, a group in care of icebox, closets and plumbing in general; a group in table setting and a group in cooking, which should culminate in serving a meal to all. It calls for an expert teacher who would bring out a spirit of responsibility, self-reliance and serious purpose in the girls.

One evening in the week could be given to invalid cookery, which could easily have an output through any hospital clinic. The expense could thus be shared and the girls get a very valuable amount of knowledge of cookery in many aspects. The great need is for a girl to realize the multiplicity of life's needs and her own ability to meet a very considerable number of them. The teacher must be mature, sympathetic and with enough experience to give sane and wholesome advice. She must have the personality and information enabling her to give some knowledge of sex problems, reproduction and parent-

hood. There is the gravest danger of putting the whole out of the reach of those whose need is the most poignant by trying to force the theoretical side of the work. The woman who has had pathetically meager opportunity cannot catch by mere contact the scientific habit which is the product of years of training. Simplicity and obviousness must be the key to which this kind of instruction must be set.

There is an economic problem involved that is serious and of which we must take cognizance.

ADDED IN DISCUSSION ON RURAL TEACHING:

The Domestic Science Section of the Farmers' Institute of Illinois has an effective and attractive method for country districts. The director visits their schools and selects a teacher in each who knows how to do well some one thing in domestic science teaching. She demonstrates her specialty in the classroom, urging the children to try it at home, and to bring a note telling what was really done. This is a small but significant beginning, for in several counties much interest is being shown. It is forming sentiment in both homes and schools which we all understand is the step to take before attempting to regulate it.

ON CLASSROOM TEACHING:

The assumption that the school kitchens have not vital and gripping attraction for girls is a mistake. They have the keenest interest in homemaking no matter how large the classes are in the public schoolroom. Our problem is not in the least one of loss of interest. The girl's strongest interest is to imitate grown people, and either in the street, or on the porch, or in the house she will do it with or without direction. Public school domestic science attempts to catch this instinct and interest at the height of the curve, and to give her knowledge and experiences to which she may later hark back, even if meanwhile she is in factory or shop work. This interest is very often destroyed because it is not exploited at the time of its most enticing attraction.

Under Mrs. Young, whose devotion to this education for homemaking is intense, our continuation work in day and evening schools has been almost quadrupled. She has used her great power where it is most needed and most effective; but even with the large amount of money at her disposal, still

the financial problem delays our work. It prevents our giving children enough instruction for efficiency. And it is a child's right to be made efficient in passing through the public schools. We have for domestic science three hours a week for ten months. We ought to have ten hours a week for ten months. That would give the girl familiar consciousness of her own power and consequent independence and real self-reliance. It is pathetic to think how little insight the girl gets, though she does indeed accumulate a considerable amount of valuable knowledge.

The obvious problem is economic, but the deeper problem is the traditional attitude of the public towards educational values.

ON EVENING SCHOOLS:

The number of working girls eager to come for evening work in domestic science is so great that we can usually give a girl but one evening a week. The classes change every night. That proves the fact that girls' interest in homemaking dies hard. I am sure that if we had the money we could get in our continuation evening schools one hundred times the number we have.

The question of fatigue and evening work is not important. What we do with interest and consequent buoyancy makes for recreation and not fatigue. The girls enjoy the companionship and common interests that culminate in a little feast. It is practically a social affair, but so well co-ordinated that it is very profitable. The orderly way in which one goes about a congenial occupation is what gives the highest type of power.

We have, of course, no training in care of babies in the evening; but we have just completed arrangements to have the nurses connected with the Board of Health come to the schools Saturday mornings to teach children the care of infants. Many parents need their children's help at home Saturday mornings. We hope eventually to have these nurses in our regular domestic science classes at a time when we can invite both mothers and daughters, so that both will receive the instruction and can be mutually helpful in carrying it out at home.

While we must have day continuation schools of homemaking, it is important to remember the large demand for evening instruction also.

MR. JASPER H. WRIGHT, Instructor in Biology, Mechanics' Institute, Rochester, New York:

As family life and the home are being crowded more and more on every side by increasing congestion of population, extensive entry of girls and women into the shops and industries and various other somewhat abnormal conditions, the need for this work (instruction in housewifery, care of children, etc.) is everywhere apparent. However, there are several important difficulties:

(1) Indifference of the girls themselves due to the fact that they have and feel no pressing need for this knowledge and training and that it has no direct cash value. The girl in the home learning housewifery with her mother was concerned with real problems—feeding, clothing and caring for the family. The girl of today in factory and shop, with no real conception of family life, sees no need nor problem, and, least of all, concerning care of children.

(2) A lack of teachers capable of efficient, enthusiastic, inspiring work. Just as to the large majority of teachers, Chemistry is Chemistry and Physics, Physics, so to the teachers of Domestic Science, Cooking is Cooking, and Dressmaking, Dressmaking, and nothing more.

(3) The failure of school boards and superintendents due to the expense of installation, difficulty in securing competent teachers, lack of active demand from pupils and parents, but mainly to hesitancy to break away from traditional subjects and courses—the old belief that the three R's, the high school and the college courses are ends instead of merely means to the end of Right Living.

While to many of our students here fancy cookery, millinery and the show side of the work is all important, an increasingly larger proportion are seeing and appreciating the true significance of the work and we are sending out from our normal department young women who are doing real work in the solution of these problems. And while we still have calls for teachers whose chief qualifications shall be proficiency in basketry, raffia work, millinery, etc., there is a large and increasing demand from superintendents for teachers who can establish real courses in homemaking.

Besides a three-year Normal course in Household Arts and Science, we are giving a one-year course for homemakers covering planning of the home itself, with its decoration and furnishings—care of floors, plumbing and kitchen utensils—planning and cooking of meals at different costs—canning and pre-

serving—study of foods and food production—marketing—laundry work — home nursing — personal and household accounts—hygiene and sanitation—hand and machine sewing—making of simple dresses—millinery and embroidery. We are doing something in all the above topics, but many are still in the formative stage and, as you see, the care of the child is noticeable for its absence.

Last year we offered a "Course in Infant Nursing," applicants to be grammar school graduates or equivalent, and to give five days a week for twelve weeks to the following subjects, taught with special reference to infants and young children: Physiology and hygiene, foods, cooking, sewing for the nursery, child study, household chemistry, lectures by physicians on eye, ear, nose and throat, food and feeding, etc. This course to be followed by paid practice work at the Infants' Summer Hospital.

While our courses here at Mechanics' Institute are not free, most evening courses are merely nominal in cost and are but forerunners of what our evening public schools are beginning to do along this line. In fact, our teacher of "theory and practice" in the normal department is also supervisor of domestic science in the public schools and through her much is being done. I inclose a brief statement from Miss May Benedict as to homemaking courses in the public schools.

ADDED IN DISCUSSION OF UTILIZING HOSPITALS:

The practice work at the Infants' Summer Hospital that our pupils received last summer suggests the possibilities for teaching continuation school pupils. Ours is an experiment for one year and not yet completely satisfactory. The initiative came from the hospital. Girls were asked for with some preliminary training in theory, sewing and cooking for children, to assist the nurses. The superintendent reported favorably on their work. The fear of the trained nurses that we were creating a class of half-trained nurses was the chief objection.

PROF. ISABEL BEVIER, Department of Household Science, University of Illinois, President of American Home Economics Association:

The whole subject of continuation schools is too large a one to dismiss briefly. Such schools for homemaking have not yet secured for themselves public recognition. Yet it seems to me if the subject is once investigated even more reasons will

be found for maintaining such schools for people beyond even the high school age. Certainly, quantitatively considered, the reasons outweigh.

The average *time* the woman spends in the factory is less than seven years. The rest of her life she spends as wife, mother, homemaker or home-spoiler. If the State feels called upon to prepare her to give good service to the factory, why should it not prepare her to give good service to the State by enabling her to be a benefit in the community life by her knowledge of selection, preparation and care of food and clothing, by her appreciation of the fundamental laws of health for her own sake and that of her children, by her ability to foster and not destroy a home.

Continuation schools for homemaking for pupils of such an age who were beginning to realize what a home might mean would yield much larger returns than the earlier schools, because they would take the pupils at a strategic point in their lives, when their home instinct was awakening a desire to cherish it. If those in authority really believe that the foundations of a State rests in the wise administration of the home, then it seems imperative that it provide such training until such time as the arts of homemaking can be taught in the grammar schools, because under present conditions the great number of girls who leave school early have absolutely no other means of acquiring such training.

To sum it up, for the sake of the individual, for the sake of our homes, for the building up and strengthening of our national life, let us have continuation schools in homemaking.

ADDED IN DISCUSSION:

For the Illinois State Fair money was secured from the legislature to build a practice house in which to teach household arts. The first year (1909) 25 girls were pupils for the two weeks of the fair. Last year there were 85, coming from all around the State. They work in relays, living in the house, caring for it, cooking for themselves and also serving meals to visitors. This popularizes the idea of teaching housekeeping, and visitors to the fair encourage it in the communities which they represent.

In the high school and continuation work at Lincoln, Iowa, they train pupils to go around the State giving instruction in household arts. They have forty of these movable schools. Illinois has four or five. The pupils have credit at the schools for manual training work, agricultural work, and domestic

science work done at home, judged by school inspectors who visit the homes. All such instruction for girls is in housewifery, cooking and sewing. They have no direct training in care of babies and children, but the lives and health of babies and children depend as much on the intelligent and efficient conduct of these household arts as they depend on housing, or a pure milk supply, or nursing.

I should like to ask whether it would not be wiser at Crete for women capable of teaching household arts to go to the schools and work with the regular school officials? I insist that there is money enough, but it is not distributed wisely, usually. Before Mrs. Young became superintendent, were not the money and the children's needs there? But she has redistributed the money and adjusted the work so as to give the instruction of which Miss Snow tells. In very many places it is urged that there is no money to teach homemaking. There are many continuation schools for boys. This is the American way. Harvard came long before Vassar. The public school money should be divided evenly between boys and girls.

MISS MAY D. BENEDICT, Supervisor of Practice Teaching in Mechanics' Institute, and of Domestic Science in Rochester Public Schools:

To attract girls, courses in homemaking should be combined with trade or industrial work. Problems in homemaking can be made practical by introducing noon luncheons; cooking, table setting and serving to center around the noon lunch for teachers and pupils. Instruction should be given in what makes a nutritious, well-balanced meal, and girls should be guided to plan lunches brought from home with reference to dishes offered for sale in the school kitchen. Courses should also include instruction in home care of the sick, care of children, personal and civic hygiene, housecleaning and laundry work, home planning and furnishing, how to buy and to keep accounts, both household and personal. In giving this practical instruction the underlying scientific and economic principles should be taught in a comprehensible form.

A possible method of increasing the efficiency of school instruction is to combine with social work, *i. e.*, a visiting teacher might follow girls into parents' homes or into a new home and continue instruction and help in practical application of school instruction. This would be work similar to that done by the Visiting Dietitian (New York), but not necessarily limited to problems of nutrition.

DR. MARION TALBOT, Dean of Women, The University of Chicago:

In preventing infant mortality we are not so much the victim of bad housing as of bad housekeeping. The housing is inadequate; but the housekeeping is intolerable. This means bad homemaking. Ordinances concerning the size of windows in relation to floor space are defeated if a window is piled full of rubbish and kept closed. Legislation and inspection must be accompanied by knowledge; and if this education we speak of is given rightly, with it will come moral power. Education of boys and girls must have as its aim the fundamental idea—the founding of a home and family. This is the root of the matter.

Instead of giving this instruction in the institution, laboratory, asylum, it should be given in the home to the fullest possible extent. Is it not possible in some way, either under the direction of the board of health or board of education, to have instructors go to homes? I do not mean visiting nurses caring for the sick. A very little is done in Chicago and New York and possibly elsewhere by philanthropic organizations. The emphasis should be thrown on the home, where the father and mother and boys and girls are. It is difficult; but we must get pupils to look forward to that place where the man and woman, husband and wife, father and mother, are going to live in family life. Such a method would mean considerable change in public opinion, of course.

The girl's keen interest has been spoken of if she is taken at the right age. If the boy had it, too, they would make the most of the home and we would get along faster in saving child life. The father should contribute more than money-making ability. He should co-operate with his wife in many other ways.

Fatigue as a factor in deciding the choice between day and evening schools is not great. Interest is more important. In rearranging some of our university work recently we have studied the problem of the diurnal curve of fatigue and concluded that the ascertained facts do not warrant drawing conclusions for masses of students from the fatigue curve of a few individuals.

PROF. JESSIE PHELPS, Department of Biology, Michigan State Normal College:

The following proposed course in biology may include all the botany and zoology as well as the general chemistry and

general physiology needed to give foundation for the domestic science course proper. Whatever other work is given in these subjects would be expected to form a spiral from which the student will receive successive views of the same facts from different and higher planes. The work in botany, in whatever form, has but one logical starting point, namely, the starch-making power of plants. It is here, then, we begin our biology lessons, and since photosynthesis cannot be comprehended without some chemical knowledge, a few experiments dealing with oxygen, carbon, carbondioxide and water must be introduced.

The subject of carbohydrate formation leads naturally to the *use* of starch and sugar by the plants themselves and by vegetable-feeding animals, hence some discussion of stored and active energy must be given. When it is seen what the great source of energy is for plants and animals and man, and how in general it must be used, then the time has come to study the intermediate steps of digestion and respiration.

Following the discussion of these fundamental biological processes, a group of common plants and animals may well be studied in their evolutionary order. This will put man in his right place in line with the other animals and will show the successive stages of food dependence of the higher on the lower forms. The evolutionary point of view will also show a solution of many of the more puzzling problems in life, even to the rearing of children. The reproductive processess seen to be of natural and inevitable origin and development will, of course, demand a rational explanation.

The pursuit of domestic science purely as such, without reference to the sciences of which it is only an application, will never raise the work of housekeeping above the level of a trade. There is plenty of freedom in the average home for the development of a high grade professionalism which could utilize all the initiative and individuality of the housekeeper. These qualities of initiative and individuality should be directly worked for in the training of our girls. Nowhere can that be done to better advantage than in the experimental sciences of chemistry and biology. Our women must be taught the laws of life if they are to dispense proper food, build proper houses and furnish proper clothing and environment in an intelligent way. It is simply an exemplification of "man shall not live by *bread* alone."

The following course in biology is the merest outline. It might easily be extended to cover a year's time, or, in the hands of a skilled teacher, it could be compressed into ten or twelve weeks. It is meant to be introductory to all the other

courses, scientific, practical and social. It takes for granted that a course in hygiene and sanitation will occur later in the course.

OUTLINE OF PROPOSED BIOLOGY COURSE IN CONTINUATION SCHOOLS

I. *Plants and animals as organisms*
   Compare animals and plants with inorganic substances such as rocks, crystals, etc.
   Give demonstration of plants and animals at work, comparing with a machine in the getting, storing and expending of energy.

II. *Plants as manufacturers of starch and sugar,* the chief foods of the world
   Parts of some common plants, such as the potato plant, tested for starch.
   Conditions of starch-formation: experiments to show need of water, carbondioxide, light and chlorophyl.
   Tests for sugar.

III. *Chemical properties of carbon, oxygen, nitrogen, carbondioxide and water*
   Chemical experiments to show the properties of the above elements and compounds and the liberation of energy on the oxidation of carbon.
   Starch and sugar and oils compared as to chemical composition and combustibility.

IV. *Study of plant structures in order to understand the machinery of photosynthesis and the transporting apparatus of raw and elaborated materials*
   Protoplasmic movement in plant cells.
   Study of undifferentiated protoplasm in amoeba, white blood cells, slim moulds, etc.
   Structure of leaf, root and stem of corn plant.

V. *Osmosis and transpiration*

VI. *Plants as storers and expenders of energy*
   Demonstration of the transference of energy in simple machines, and in steam engines.
   Demonstration and explanation of chemical energy with reference to carbon and oxygen (the atomic theory).
   Demonstration of energy of wood, coal and starch.
   How plants use energy, especially seeds.
   Respiration of plants.

VII. *Animals as storers and users of energy*
Relation of animals to plants.
VIII. *Plants as manufacturers of protein*
Necessity for nitrogen.
Sources of nitrogen.
Study of nitrifying bacteria.
IX. *Digestion and assimilation of plant products*
By plants themselves.
By animals.
X. *Types of plants* (the choice would best be made from those of some economic importance. All the laws of biology should be restated for every new form; the life history and methods of reproduction should be especially emphasized.)
So-called "flowering" plants with special reference to relation of flower and fruit. Ferns, Fungi, Algae, Bacteria (study of the bacteria of schoolroom and bedroom—dust, milk, and of a few of the more common diseases).
XI. *Types of animals* (studied from the standpoint of their food relation and their physiological processes, especially digestion, respiration and reproduction.
Protozoa; Hydra; Earthworm (relation to agriculture); Lobster; Insects (pests of common and domestic animals and plants; study of bees and honey making; relation of bees to fertilization of flowers). Oyster; Fish; Frog (life history); Birds (study of hen's egg and development of chick); Mammals (including man from both physical and ethnological standpoint).
XII. *How animals and plants have come to be*
Dependence of higher on lower forms.
Relation of each form to the physical world.
Principles, factors and processes of evolution.
XIII. *Reading list.*

MISS MYRA BROCKETT, Superintendent of the Mary Crane Day Nursery, Chicago:

It seems from our experience entirely practicable to utilize day nurseries for teaching young women the care of babies. The Crane Day Nursery is carried on by the United Charities of Chicago; therefore we deal with people under abnormal conditions and not in the ordinary social scale of mothers and children.

We have taken in the last two years probably more than twenty girls over fourteen years old to help in the nursery, and have trained them in the care of children, under the supervision of the head nurse. Many have stayed at home and helped their mothers; some work also in factories; and five have gone into regular nursery work. We have taken older sisters, and brothers also, to teach them how to take care of the younger children, and have had very excellent results, with greatly improved conditions at home.

We have also trained many young mothers, both in our model flat under our domestic science teacher, and in the nursery. Some were married, and none knew how to take care of their children or to earn a living. We trained them into home makers and into home helpers. Their babies are now all healthy fine children, without exception; the mothers are very much improved in health, and are making good in different lines of work into which they have gone. I strongly urge the value of this constructive work among young women and especially the very poor young mothers. Regular continuation schools can accomplish it on a much larger scale of course. We also have a trained visiting housekeeper who goes to the homes and, after winning their co-operation, teaches them there home making and care of children. These visitors have opportunity to find out defective sewerage, tuberculosis, truancy, abuse of children, and other evils that are among the causes of infant mortality. When found they are reported to the proper authorities for remedy.

MISS SARAH LOUISE ARNOLD, Dean of Simmons College, Boston:

Massachusetts has found it exceedingly difficult to combine continuation schools of home making with work of trade schools. The type is different. Boston could have a central school corresponding to the Girls' Technical High School, which could be open all the year, day and evening.

We should like if we could substitute the part-time school for the evening continuation school, for the cash girls and the other girls working all day. We should like to have a part-time school attended by every girl one day in the week. It should be divided into many different classes.

I look forward to the time when these continuation schools will be included in the compulsory education law, and no girl can become a wage earner who has not had adequate training in home making, just as now no boy can be employed who cannot read. When we require all women to be trained in the

elementary principles of home making we can requqire it of the well-to-do girl. She can get it at a private school if she choose; but the other girl who cannot choose will be provided for by these continuation schools, which she must attend until she has fulfilled the general requirements. If she has not done so, we shall be able to say to the employer, "You cannot keep that girl six days a week, because she has not fulfilled her home making requirements." I think this resolution on part-time schools is a step toward that state of the public mind.

PROFESSOR FRANCES SQUIRE POTTER, representing the Woman's Trade Union League of America, and National University Extension Work:

Thomas Huxley once said that to write an elementary text-book requires the most extensive knowledge of the subject presented; otherwise, how would the writer know how to pick his essentials?

Whatever official expression of its educational ideal a country may evolve, THE HOME is its elementary text-book. If, in that text-book, nature is wrongly interpreted, the result to the nation's offspring is a fatal handicap. The death-rate of our little children is an obvious comment upon the American home; but we have no record of the children who die in part—except through the fragmentary statistics from the schools, asylums and courts for juvenile delinquents. To perfect home-making is the business of the human species, the goal of its educational ambition, the way to its social life and happiness.

Now what is the American "home?" Is it the sequestered shelter of the well-to-do? Is it the basement in which three families are living as one? Is it the garret in which partial families are stalled, largely made up of fathers, brothers and husbands, whose mothers, wives and sisters are waiting in the old country for money enough to come to America? Is it the tenement in which seventy persons wash from one water-spout, a row of litle children waiting in the morning, each for his turn? Is it the apartment-colony? the settlement? in short, is it the community? What are the essentials in "home-making?" Do they stop short of the most fundamental civic functions, and the most efficient social co-operation? To these ends the continuation school in home-making will play an important and ever-increasing part.

In the Continuation School the pupils, children or adults, must have opportunity for vocational training,—(by "vocational training" I mean not only a training which fits boy and

girl into the domestic order and business machinery, but also one giving play to the inborn gifts and talents frequently cowed and let to atrophy in our present system,)—and they must have room and opportunity around that vocational training to grow up together naturally into right civic consciousness and coequal domestic responsibility.

Doubtless this inevitable American education is coming through various agencies. My own observation has dwelt particularly upon three; first, object lessons in home-making instruction, well-typified by the Boston Conferences, which philanthropic organizations are offering; second, the conscious efforts of public school educators to create schools in which boys learn to make, mend and equip homes, and girls learn to cook, sew, sweep, and nurse; and third, the evolution of the genuine thing coming in spite of us within our public-school organism. Each of these agencies has its value. I believe it is well, however, for educators to bear in mind (1) that philanthropic service needs must run the dangers of partiality, emotionalism, and financial insecurity, that its methods cannot be ultimate for it is founded upon a false school of economics, (2) that the industrial experiments within our public-school system which choose or permit sex or class segregation, rendering a normal civic and social evolution around the vocational training impossible, are educationally mischievous, (3) that "our all-wise and beneficent mother, nature," is always building with the stones which educational tinkerers so often reject.

To illustrate the education which is coming in the last manner to which I refer, let me cite a few simple incidents.

I recently visited one of the Chicago grade-schools in a southern section of the city. In the gymnasium the first grade and eighth grade boys and girls were dancing some pretty domestic game, a big boy fathering a little girl, a big girl mothering a little boy. After recess they separated and went into different class-rooms. I inspected a stocking which a boy of six was darning. It seemed very little. I asked, "Isn't this too little for you?" "Oh, it's not mine!" he smiled, "It's baby's." The teacher asked, "How many of you have babies in your homes?" Three-fourths of the right hands went up. Then a ten-year-old Italian boy stood up and said eagerly, "We haven't a baby now, but we are going to have one." The teacher, who was very wise, said with unaffected friendliness, "That one shall be counted in, too, then. You must take good care of it!"

In the ungraded room of a school in an Eastern city not long ago the teacher, noticing my interest in a little Greek boy,

said feelingly, "Dear little fellow! He has had to be late to school this week. He bathes and dresses the new baby every morning, and sees to his mother's breakfast. He tells us how the baby is getting on, and we talk over the best things to do for her." In this same room another boy was pointed out to me. He had been jeered at by some of his school fellows because he lived with negroes. The teacher told me his story. He was the survivor of a family of four children. The mother, in a frantic moment, had attempted to drown the four. A colored woman, with the help of a policeman, rescued one. The woman adopted the child she had saved, and was proud of him. She took very good care of him, saying she "hoped he might grow up to be a teacher for the negroes."

It is along these lines of normal human relationships cherished in conjunction with specific training, within the expanding school system, that we must look for the solution of our complex problem.

ADDED TO THE FOREGOING IN DISCUSSING EVENING SCHOOLS:

Continuation Schools of Home Making in their relation to working women need to consider the changed economic conditions, the changed social conditions, the modern scientific conception of parenthood, and the minimum wage permitting children to be properly raised.

Some of the virtues of our gradmothers have become the extravagances of today. The stock portrait of the good mother enshrined in literature and in the general thought is that of a fair, gentle, capable presence, attending to her household duties with cheerfulness and efficiency, cooking the meals, making the clothes, gathering the children about her knees at bed-time, tucking them in, lovingly darning their stockings afterwards. The idea prevails that this is the best kind of mother type, and that girls should be trained to look forward to it. We want cooking and sewing in the schools to that end. But look at the facts. Such an ideal as this is impossible for millions of working women today. The virtues of housewifely thrift illustrated by our grandmothers are quite out of their reach. They cannot afford them.

Therefore it is the function of the continuation school for the working woman to accompany training in the domestic arts with the following vital knowledge: What grade of machine-made clothes can she afford to patch? What grade of stockings and what size of hole can she afford to darn? What kind of a shoe can be patched profitably? What kind of un-

derclothes can be bought on a certain income? What food, if any, can be profitably cooked at home? Definite incomes should be taken and their purchasing power calculated definitely along these lines. Also research work should be done in every district to ascertain where goods may best be purchased. The selection of shops, goods and products, the quantities in which to buy goods, information as to professional menders, cooks, laundresses, etc., are vitally important parts of this kind of instruction.

Because of changed social conditions we need to instruct the two sexes together in many parts of home making. This means evening schools. It is wasteful and unscientific to have two separate courses of instruction for persons who have the same interests in many subjects that should be taught together. For instance, the selection of a house is something the husband and wife have an equal stake in. Therefore they should have the same knowledge to guide them. Friction would be avoided, and, in case husband or wife dies, the other would be less helpless, better able to cope with increasing responsibility, were they trained together. Sanitation, water supply, light supply, milk supply, all civic housekeeping is their mutual responsibility; much of this is to be regulated by the vote, entailing training for citizenship for both men and women.

The modern conception of parenthood is coming to be scientific. The continuation school should face the following problems: the physical inheritance of the child from both father and mother, the working and living conditions of the mother during pregnancy, the necessity in a working woman's home of cheap, hired care for the child during infancy, or, on the other hand, of a sweat-shop home, the conditions of the street in which the child must play, child labor as soon as the child is able to assume part of the burden of the family support. The needs enumerated make co-operation and evening schools imperative.

The minimum wage is the crucial factor in industrial life and the saving of infant life. It should be frankly discussed in continuation schools. Any dodging of this—the ability to bring up children properly—vitiates the value of the instruction. We can teach how to do the best with a sub-minimum wage, but we should insist, at the same time that it is a palliative experiment.

I suggest that the curriculum fit for the working man and woman is valuable to all.

SECTION ON EUGENICS

Friday, November 17, 10.30 A. M.

CHAIRMAN

H. E. JORDAN, Ph. D., University of Virginia, Charlottesville, Va.

SECRETARY

ROSWELL JOHNSON, M. S., Bartlesville, Oklahoma

The following resolutions, summarizing the findings of the Section on Eugenics, were adopted by the Section. They were reported to the Association at the general session of Friday afternoon, November 17, and were adopted as read:

RESOLUTIONS

WHEREAS, the Eugenics Section of the American Association for Study and Prevention of Infant Mortality realizes that under present conditions its efforts for infant conservation must necessarily work some anti-eugenic results; but convinced that it cannot compromise regarding universal and indiscriminate salvage; and believing that from the viewpoint of its ultimate ideal which is to aid in the effort to produce the highest type of physical, intellectual and social man, it must somehow adapt its work to and harmonize it with the eugenic aim; believing further that we possess sufficient scientific data to warrant a strong faith in the hereditary transmission of certain pathologic conditions which help to swell the infant mortality rate, *therefore be it resolved*

I. That in an effort to remedy existing conditions we earnestly advocate, by means of individual efforts for creating public sentiment, by public instruction, by moral suasion, especially on the part of the Church, by effective segregation and in certain extreme cases, by legislation authorizing even surgical procedure, the prohibition of procreation to the racially unfit; and the encouragement (in part by seeking to remedy restraining economic conditions by means of legislation) to greater productivity among the best elements of our stock.

II. That we advocate the establishment and endowment of national eugenic investigations by the best trained scientists.

III. That in view of the startling revelations of the Chicago Vice Commission and the statements in the paper by Dr. Prince Morrow, we recommend that in some way a movement be inaugurated through the Eugenics Section so that syphilis and gonorrhoea must be reported to the City Health Department, and in some cases isolation be effected.

IV. That we offer our aid to a scheme of co-operative investigation, whereby we are willing to procure as completely as possible the family history of any case indicating the hereditary transmission of a physical or mental condition conducing to infant death or human suffering and sorrow, and forward same to Chairman.

The following took part in the general discussion of the Resolutions:

Mrs. Mary E. Teats, of Chicago: After twenty years of careful study of Eugenics and hand-to-hand work with all classes of society and especially the home life, I am more and more convinced that the primal cause of nine-tenths of the infant mortality, and human degeneracy in general, is the lack of knowledge of the laws of life and procreation. Hence the most effective and immediate remedy for human degeneracy is a definite, practical Eugenic education for the present-day young men and young women, relative to the laws of heredity and the rights of the wife and the unborn child. The wise farmer and stock raiser, the professional and business man, make thorough *preparation* for their respective vocations that possess a money value; and the more thorough the preparation the more sure are they of achieving success. Dare we do less for the production of human souls?

Incidentally, permit me to say with reference to the discussion of illegitimate children, that rightly considered, there is no such thing as an illegitimate child. It is the *parents* that are illegitimate. Is it not sufficient for the little one that did not ask for an existence, to bear the stigma of being a nameless child, without having the added disgrace of illegitimacy attached thereto?

Dr. Charles J. Lewis, of Chicago: Eugenics has reference to the bringing forth of well organized offspring. We see all around us that there is a great need that this be done. The criminal especially should be eliminated. How to do this is the problem. Perhaps the most far-reaching method in its results is surgical. The defective and the criminal classes should be restricted whenever possible, to the end of relieving society of the incubus of caring for the anti-social people.

Miss Mary R. Campbell: When a person is suffering from smallpox he is placed in an isolation hospital until the communicable period of the disease is over. Smallpox is but a temporary disease, whereas syphilis and gonorrhoea are diseases that affect the third and fourth generations, with the consequent result that the insane, the feeble-minded and epileptic population is on the increase. An isolation hospital for syphilitics and gonorrhoeal patients is recommended and urged.

The chief topics discussed at the Section meeting were:

1. The relative importance of heredity as a causal factor in infant mortality.

2. The hereditary effects of (a) alcoholism, (b) syphilis, (c) tuberculosis, as they relate to infant mortality.

3. Compensatory measures against the anti-eugenic effects of indiscriminate infant conservation.

4. The physician's opportunities and duties respecting eugenic measures against infant mortality.

5. A scheme of co-operative eugenic investigation.

The papers and discussions follow:

THE EUGENIC BEARINGS OF THE EFFORTS FOR INFANT CONSERVATION

By the Chairman, H. E. JORDAN, Ph. D., University of Virginia

Introductory. — In the abstracts already published an attempt has been made to summarize the most important facts and suggestions in the several very valuable papers, the titles of which appear on our program. It is the intention of the Eugenics Section to print these papers in full in its Transactions. We believe that they represent a distinct addition to eugenic literature, and to our equipment for effecting in the most rational manner the reduction of the present high rate of infant mortality. Taking it for granted that the contents of these abstracts have been generally noted; and in view of the fact that the papers will shortly become accessible, I shall make little further distinct reference to them. I shall confine my remarks largely to an effort to indicate the relation of eugenics to infant mortality—to state the reasons for a Eugenics Section of this Association—and to outline a plan for future action. In all these remarks I shall, however, be guided by the facts presented and the positions urged in these papers; and also by those in the Drapers Company Memoirs and other memoirs from the Galton Eugenics Laboratory of London, in the Publications of the American Breeders' Association, and in a number of important papers on Heredity from the biological laboratories of our universities and experiment stations. My remarks must, of necessity, be more or less general. At the same time I shall attempt to center your interest upon a few salient points.

A Settled Principle of Future Policy. — Notwithstanding considerable criticism on the part of radical eugenists, this Section, it seems to me, can advocate and follow no other policy than that of the indiscriminate and universal conservation of infant life. Anything less than an earnest effort to save *all* the babies, regardless of suspected innate equipment or lack of equipment, would be incongruous with our Christian civilization. We may acknowledge that to some extent infant mortality is a process of natural selection bringing about a survival of the physically most fit, and yet wisely urge that the inhumanity of this method is altogether incompatible with

our present state of social advancement. The gain physically would be far outbalanced by serious losses intellectually and morally.

Under present conditions fitness includes mental as well as physical characters. Moreover, it is probably true, as President D. S. Jordan suggests, that in early infancy a strong child can be almost as easily killed as a weak one. Our efforts in behalf of *all* may save some that are very unfit both physically and morally; but many of the really fit will thus be conserved which under discriminating conditions would undoubtedly be lost.

Despite the statement, therefore, of the radical eugenists that the indiscriminate efforts for infant conservation are anti-eugenic, and despite the cold reasonableness of the arguments presented, we cannot safely take, much less suggest, any discriminating procedure. We must save all the babies we can—but recognize at the same time that we thus save some unfit stock — and then plan for some compensatory action, as suggested in the paper by Mr. Johnson. A quotation from the British alienist Thredgold is to the point as indicating our danger and our duty in this respect. "I would lay it down as a general principle that as soon as a nation reaches that stage of civilization in which medical knowledge and humanitarian sentiment operate to prolong the existence of the unfit, then it becomes imperative upon that nation to devise such social laws as will insure that these unfit do not propagate their kind." Thredgold would have medical and social science fight and relieve disease in every shape and form, but he believes it would be a national disaster to allow the hereditarily unfit (criminally or otherwise) to be born.

Recognition of the Factor of Heredity.—While it is probably true that under continued adverse conditions all babies would succumb, it is equally true that some have greater vitality than others. Some seem born with an "inaptitude for living," as Dr. Prince Morrow puts it, or with a lack of "biologic capital." As Professor von Grüber has shown, there seems to be a marked tendency for infant mortality to run in families. A certain indefinite quota of infant deaths must be attributed to the factor of heredity: hence the importance of intelligent recognition of this factor. Our greatest success in the matter of infant conservation thus lies along the line of utilizing the factor of heredity to this end. Our settled policy being to endeavor to save all infants, we shall more nearly realize our ideal, as parentage is more largely of the kind with aptitude for life.

The two salient points, then, for our consideration, it seems to me, are (1) that a certain amount of infant mortality is due to hereditary inaptitude for life, whether from disease or otherwise, and is, therefore, controllable; and (2) that it is imperative that we make an effort to offset and gradually eliminate the production of much unfit stock that will through our efforts be brought to the procreative period, and thus work an anti-eugenic result.

Susceptibility and Resistance to Disease.—Experiments with both plants and animals show that susceptibility and resistance or immunity to certain diseases are hereditary, probably very much as eye-color and other carefully studied human characters are hereditary, *i. e.,* they reappear in Mendelian fashion. This point may be illustrated by Biffens' studies on wheat and Pearson's studies on tuberculosis.

In 1900, Professor R. H. Biffen, a biologist, was engaged by the National Association of British and Irish Millers to make a scientific study of means to produce a larger and better wheat yield. The problem was to produce from a loose-eared, well-bearded native wheat with low gluten content and susceptibility to rust, one suited to English climate, but with full beardless ear, strong straw, high gluten content, high yield per acre and rust resistant. We are interested here only in the attainment of the last requirement, though it ought to be stated that Biffen succeeded in producing the wheat according to specifications in 1905. Biffen crossed the native rust-susceptible wheat with a foreign rust-resistant wheat. All of the first generation were rust-susceptible. But when seed of this generation was sown there resulted rust-susceptibles and rust- resistants approximately in the Mendelian proportion of 3 to 1. The rust-resistant recessives thereafter bred true to type.

Thus this experiment, as well as several others that might be mentioned, shows that susceptibility and resistance (or immunity) are of the nature of 'unit characters" or "allelomorphs" and may be produced or eliminated in plants and animals at will by appropriate breeding methods.

There seems little doubt that certain pathological conditions as well as susceptibility and resistance to certain zymotic diseases are of a similar nature and amenable to similar procedure. This seems especially pertinent with respect to tuberculosis. The work of Professor Karl Pearson yields very cogent proof that a large quota of tuberculosis is due to a hereditary diathesis or predisposition thereto. The salient fact in the proof is that, while the degree of resemblance (the correlation

coefficient) between husband and wife, where there is much opportunity for possible direct infection, is only somewhere between .17 and .25 (and this he regards due largely to assortive mating), that between parents and children is between .40 and .50, and between brother and brother as high as from .40 to .60.

A large amount of tuberculosis thus seems due to heredity and might be more largely eliminated from future generations by wise matings and proper marriage restrictions. If tuberculosis were simply a matter of infection, rather than lack of resistance to the germ, the disease would be very much more general than at present, since, according to Pearson, about 80 or 90 per cent of our population have tubercular lesions before the age of 18. Hereditary phthisical diathesis undoubtedly adds a certain large quota to the total infant mortality. This is probably true also of other hereditary pathological conditions. Alcoholism also, according to Dr. J. P. Warbasse, and syphilis, according to Dr. Prince Morrow, work constitutional weaknesses which are hereditary.

Interpretation of Results in Terms of Eugenics.—There is considerable scientific evidence to strongly indicate that many other diseases, *e. g.,* heart disease, syphilis, cancer, nephritis, arterio-sclerosis, etc., are hereditary. All this means low infant resistance and increasing infant mortality. It means also that the lower the infant death rate the more of unfit stock is left to reproduce its unfit type. Our ideal is the production of the human thoroughbred, *i. e.,* the highest type of physical, mental and moral manhood and womanhood. We dare not then close our eyes and ears to the fact that much of our efforts work anti-eugenic results. Let me repeat; we must save all the babies, but let me say also with yet greater emphasis that we must realize what of ill we are doing from the standpoint of the future race; and let me insist that we must make strong efforts to compensate, and more than simply compensate, for our anti-eugenic work. To save the babies is only half the work; we must have as our ultimate aim the salvage of the race. To save the babies requires scientific skill and large and charitable hearts, but to labor for the future race requires still more of all of these qualities, besides earnest patriotism, wise foresight, and a high order of statesmanship. The Eugenic Section feels that unless we take a wider view of our problems respecting infant mortality, we are neglecting our supreme opportunity and our fullest duty. "Except in the case of man himself," wrote Darwin, "hardly anyone is so ignorant as to allow his worst animals to breed."

"The great horde of defectives once in the world have a right to live and enjoy as best they may whatever freedom is compatible with the lives and freedom of the other members of society. They have not the right to produce and reproduce more of their kind for a too generous and too blindly 'charitable' society to contend against," says Kellicott. And, says W. Hope-Jones, for want of courage, "our soft-hearted world goes on alleviating present suffering by laying up greater suffering for the future."

Negative Compensation.—First, then, we must advocate indiscriminate and universal infant conservation; next we must advocate no less strenuously conservative negative eugenics. We already possess a sufficient body of scientific data to more than simply warrant us in attempting to create public sentiment against the unhindered marriage of imbecile, idiot, epileptic, tubercular, syphilitic, those with cancer or otherwise genetically injured. Our duty here lies along the line, first, of individual eugenic practice (somewhat perhaps after the manner of the German and Swedish Societies for Racial Hygiene); next, the creation of public sentiment in respect to the limited parenthood of those socially unquestionably unfit; also, a demand for more properly trained scientists to undertake wider and more thorough researches along eugenic lines; and, finally, legislation to compel the anti-social and racially unfit to abstain from parenthood. Galton's statement that while "charity refers to the individual; statesmanship to the nation; eugenics cares for both," indicates the scope and purpose of our efforts.

The Indiana Law for the sterilization of criminals and defectives seems like the most humane negative eugenic procedure for extreme cases. Could such a law be enforced in the whole United States very few generations would suffice to greatly diminish in our nation the crime, insanity and sickness of our day. Problems respecting the unemployed, the indigent, and the hopelessly degenerate would also be largely met.

Having stated the case for heredity thus strongly, I hasten to add that I am not unmindful of the potency of environmental factors for social and racial betterment. Heredity and environment go hand in hand. As absolute essentials they are relatively equally important. They complement each other in the process of human evolution.

Eugenists cannot spare the continued earnest efforts of social workers for ameliorating the baneful conditions of economic maladjustments. Bad housing, prostitution, alcoholism, low wages, long hours, lack of income in case of sickness and

unemployment, non-compensation for accidents and certain occupational diseases, and many other environmental conditions are all inimical or deterrent to the full expression of good hereditary qualities.

Work along euthenic lines must continue; but in so doing we must not neglect to reckon with the factor of heredity. Attention to either heredity or environment alone under present economic and political conditions will be largely abortive of telling results. Real success lies only in intelligent recognition of both factors and their direction to the same end. Nevertheless, ultimately and completely, the correction of the above-named social and economic ills may perhaps still be merely a matter of breeding men of hearts and consciences too large and sensitive to be content with a material prosperity acquired at the expense of the full expression of the best innate qualities of their brother men, and to the detriment of society as a whole and the future race. For the influence of heredity is shown equally in mental and physical characters.

Positive Compensation.—But rigidly applied negative eugenics satisfies only a portion of the demands. It insures that fewer weaklings and undesirables of various types shall be born. It insures that our efforts for infant conservation shall be more largely applied to the racially better elements. It insures also a greater numerical success. But for a nation to breed predominatingly only from its simply not really unfit means retrogression. Our greater efforts should perhaps be put forth in behalf of positive eugenics, the planned production of the physical, mental and moral thoroughbred.

Such course, in the large, demands more scientific knowledge. But we possess sufficient data to warrant us in pleading for the aid of the church, and charitable and scientific institutions, and the medical profession generally, to help shape public sentiment in favor of good-sized families among the racially best, and to change the standards for a "good match" from simply externals and largely material things to stock and intrinsic worth of hereditary equipment in characters of highest survival value. That "the enlightenment of the individual is a necessary preamble to practical eugenics, but social opinion by praise or blame constantly influences individual conduct," sums up Galton's opinion and plan respecting eugenic propaganda.

Plan of Procedure.—Our plan for future procedure I believe should involve the following activities:

1. Unmoved by the criticism, but recognizing the plausibility of its basic principle, that our efforts for infant conservation bring about a state of contra-selection, we shall continue our work for universal salvage, in the knowledge that what saves the weak will save also more of the potentially strong.

2. Recognize that we are thus saving some racially unfit stock—an anti-eugenic act—which must be compensated for.

3. Recognize that a certain percentage of infant deaths is due to hereditary inaptitude for life, the result in part of physically low-grade parentage.

4. Advocate firmly, sympathetically and intelligently both strict negative eugenics—in certain extreme cases recommending the Rentoul operation as practiced in the State of Indiana since 1907, and legalized in Connecticut since 1909, and since recently in Oregon and New Jersey; in others, for example, the feeble-minded woman, strict segregation—also positive eugenics. The former course will in a few generations bring about the elimination of the perennial and enlarging source of the racially very unfit; the latter will still further compensate for much indifferent material and give us the best to save by our efforts for infant conservation. Eugenics will insure our greater success and will give us a lighter heart for our work, realizing, as we may when eugenic conduct generally prevails, that our efforts for conservation will conserve the best.

5. In the attainment of our ideal we must help create proper social opinion; aid, stimulate and encourage scientific investigation; and suggest and urge wise and strict eugenic legislation.

6. We must recognize that infant conservation from the highest viewpoint can be successful only as it has largely of the best to save.

Plan of Co-operative Investigation.—We are in need of considerable more scientific evidence and data respecting the inheritance of bodily weaknesses, susceptibility and resistance to certain infectious diseases, the inheritance of syphilis, heart disease, nephritis, arterio-sclerosis, etc. This body of physicians undoubtedly now knows, or has access to, or will have access to during the coming year, much valuable information along these lines. Few men in the ordinary course of a physician's life will come across many cases, or at least sufficient to warrant wide generalization; one case, however good apparently, by itself will have relatively little value.

I want to propose a plan of co-operative investigation, by which I mean some scheme whereby everyone who knows of some case or cases which indicate hereditary transmission of some pathologic condition or defect,* mental or physical, will carefully work up the family history involved (being very careful to record all the children and collaterals as far as possible, both unaffected and affected, noting carefully sex, age, and age at death or onset of disease), and forward the data to the chairman, who offers to preserve the same; and with his colleagues carefully study the records and attempt to discover and formulate indicated principles respecting the hereditary transmission of the conditions as they affect infant mortality—the report of results not to issue from himself, but from the Eugenics Section of this Society, after careful scrutiny and approval by recognized authorities on eugenic matters—or turn same over for use to the Eugenics Record Office at Cold Spring Harbor, L. I.

DISCUSSION

Question: I would like to know a little about the State laws. Do any other states besides Indiana legalize vasectomy?

Answer (Chairman): Only Indiana has enforced that law, passed in 1907. Connecticut passed such a law in 1909. Recently Oregon, Iowa and New Jersey passed similar laws.

Question (Dr. Wallin): Could you give any answer or reason why some that undergo this operation seek to have it performed? Is it from a desire for good, or are there other reasons?

Answer (Chairman): I should say that those who seek it do so from highest motives.

Question: Is it obligatory?

Answer (Chairman): In the case of serious deficients such as confirmed criminals, idiots, etc.

Question: Why is it that the criminals want it?

Answer (Chairman): I did not know that the criminals wanted it.

Mr. Roswell Johnson. I should say roughly that about 50 per cent have the operation performed voluntarily in Indiana.

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*As a beginning, I am able to report a case of hereditary cleft-palate dating back to pre-Revolutionary times, according to information supplied me by Dr. Simpson, of Palmer, Ill.; a good-sized two-generation family history showing the inheritance of a kidney condition producing death by uraemic poisoning; a history of a father and two daughters (colored) with neuro-filroma (a comparatively rare tumor condition); and a large four-generation family history showing the inheritance of cancer. Furthermore, with the help of Dr. Lewis Booker, of the Tuberculosis Sanitorium, of Montrose, N. C., I am collecting data respecting the inheritance of pulmonary tuberculosis; also, data are now being collected for me among the public school children of three of our Southern States respecting hereditary left-handedness and the relation of this condition to eye-defect, defects of speech, headaches, etc.

Question: Why do criminals seek it, however?

Mrs. Mary E. Teats, Chicago: The operation does not prevent their spreading disease or ruining girls.

————————: For that very reason I should think they ought to be confined until after the reproductive period. That, after all, I think is the best method and the most reasonable method to adopt at the present time.

Mr. Johnson: Not only *should* the worker for infant conservation exert himself for eugenic reforms for the reasons given today, but he *must*, to accomplish his own ends. In the section on "Nursing and Social Work, yesterday, Miss Van Blarcom said that "the problem of infant mortality is to be solved through intelligent motherhood."

Any effort to increase the efficiency of mothers as guardians of the health of their infants must depend on the effort to educate them and their *capacity* to be educated. All who have done social work know that some mothers can't be taught consistent hygiene because they lack the intelligence to apply the principles given to new circumstances that arise.

I have been testing the school children of a small city by means of Binet's scale for the measurement of intelligence with some modifications. The work is not finished, but in order to present some preliminary results on this occasion I have tabulated the children already finished. It embraces the third, fourth and fifth grades of one school. The range is enormous, as 100 was intended by Binet as one year's mental development. The scores by which they exceed or fall below the normal for the month and year of birth are plotted in this chart.

It is my intention to obtain similar data on some of the parents, but I have also thought it well to record the parents who filled out the entrance blanks with marked crudity of English. The children of such parents are shown by the blue vertical lines. On the other hand the children of parents of relative achievement are given by red vertical lines. You will note that the parents of achievement have superior children and the ignorant parents inferior children with surprisingly little overlapping.

Now it cannot be denied that environment does have some part in the success in the Binet tests, but they have been planned with the idea of reducing this element to a minimum and these results therefore strengthen the previous work of the Eugenics Laboratory in showing that mental differences are inherited.

To reduce the infant mortality arising from the mentally backward mothers, we must resort to eugenics as well as education.

Mr. Wallin: I feel as far as the Binet tests are concerned, that while they do not give us a complete diagnosis of any child, they do give us a very valuable preliminary estimate of the defective child. Now in regard to this particularl study here, this is an interesting application because it is a new method. The Binet tests are to be given to children individually, but here you have tests given to a group of individuals. While I feel that the Binet tests are of great value, you cannot put these tests into the hands of anybody. They would be practically useless to most people. The experimenter must be trained for the work.

Mr. Johnson: It is simply a question of how much accuracy we shall get. There is the careful individual test, where the fate of the subject is at stake. Then there is the group test which,while it has less accuracy, is still valuable for statistical purposes.

HEREDITY VERSUS ENVIRONMENT IN RELATION TO INFANT MORTALITY

Pres. DAVID STARR JORDAN, Leland Stanford Junior University, California

As a child grows older the relative value of nature against nurture grows larger. A strong child can be killed almost as readily as a weak one when it is very young. Consequently, its development depends on vegetative matter. As it grows older its natural qualities come out more and more, and nurture will not raise it beyond its fair normal. Some forms of environment bring about disease or disorder, and will tear down even the strongest, but in a general way, whatever the surroundings, these tend to come to their own, and to make up for what may be lost through deficient nurture. The problem is of very great importance, on which we need more facts rather than more opinion. (Abstract.)

EUGENICS AND INFANT MORTALITY

By ROSWELL H. JOHNSON, M. S., Bartlesville, Oklahoma

Men and women who are active workers in the campaign against infant mortality achieve their greatest success, numerically, among our poorest stocks. Evidently, the result of this is in direct opposition to the action of Natural Selection, and, doubtless, this is the reason why the relation of eugenics to infant mortality is now open for discussion.

Shall we, then, abandon this work of saving infant lives, lest by so doing we interfere with nature's ancient method of preserving only the "fit"? If we give up *this* fight, to be consistent, we shall have to give up most of the other philanthropies of the time, since they, too, are contrary to the action of Natural Selection.

We might think reluctantly that we ought to abandon this struggle for the children if at the same time we did not realize that there are *other* means of human evolution besides that cruel one of Natural Selection. We can, therefore, continue our fight against death with one hand, and with the other try to right the biological loss by furthering these other processes of human evolution so as to more than compensate.

Let us first take Sexual Selection. To advance this it is necessary that in some way young people have wider range for acquaintance and social intercourse than at present. And it is still more essential that old ideals of "a good match"—too often for money or social position—be supplanted by standards based on intrinsic worth and fitness for parenthood. On the other hand, those obviously unfit for parenthood should feel the force of public opinion in such matters, or, being too obtuse for that, should be checked by State control from a course likely to result in inferior offspring. Such efforts involve no sacrifice of social welfare.

A second important factor of evolution is the effect of varying numbers of progeny from parents of differing quality, which is Fecundal Selection. Surely here the humanitarian will aid and abet the eugenist who urges that parents of superior stock have larger families and that those of inferior stock have smaller.

Still another factor in race progress, the direct action of environment, is obviously consistent with the aims of both the humanitarian and the eugenist.

Here, then, is the way out of the dilemma. We will save all the lives we can, however much it may fly in the face of Natural Selection and Herbert Spencer. At the same time we will compensate by efforts that further race progress without sacrificing social progress.

The workers against infant mortality are largely physicians and social workers. They, by virtue of their work, have unusual opportunity for influencing the birth rate. For this reason it is desirable to point out a specific way in which to aid human evolution, as previously suggested. If the human race now is not progressing, as is alleged, the main reason lies in the fact that our good stocks ordinarily have small families, while the poor stocks have excessive families. Let us all greatly honor Mr. Roosevelt for his splendid preachments, especially that in the "Outlook" of April 8, 1911, which I should like to quote here.

We must continue Roosevelt's fine plea for more children from the best and mediocre stocks. And at the same time let us advocate a wider and wiser use of the approved methods of regulation, well described in Forel's "The Sexual Problem," now in three languages, but best read in the original French. When this knowledge becomes general, all children will be welcome, not accidents, and this in itself will accomplish a certain selection in the basis of desire for children. Especially in inferior stocks and races such means of prevention should be encouraged by the physician. At the same time he should exert every effort to induce capable parents to make the contribution to the population that we may properly except from them.

GENETICS AND EUGENICS

A CONSIDERATION OF THE RELATION OF ANIMAL EXPERIMENTATION TO HUMAN INHERITANCE AND INFANT CONSERVATION

By Prof. RAYMOND PEARL, Maine Agricultural Experiment Station, Orono, Me.

During the past decade there has developed an activity in the experimental and analytical study of the laws of inheritance in plants and animals unprecedented in the history of biology. In the same period we have seen the new science of eugenics rising rapidly to a position already certainly very respectable and giving good promise, because of its great intrinsic importance, of some day becoming the crowning one of the biological sciences. It is obvious that these two great developments of biology, genetics and eugenics, are directly and intimately related. It is the purpose of the present paper briefly to discuss certain implications of this relationship.

In a general way, the importance of genetic investigations of animals for the study of human inheritance is evident, since it is only through them that we may by direct experimentation gain a definite knowledge of the basic laws of inheritance. In the nature of the case, our knowledge of human inheritance must always remain in large degree inferential, in distinction to the direct and positive knowledge which we may get for lower animals and plants. Definite and comprehensive experiments in breeding men are, broadly speaking, impossible. Nature and social circumstances have brought about the intermixture of many human types, but the results of such natural experiments are and must always be extremely unsatisfactory from the standpoint of scientific analysis, because such a large proportion of the pertinent and necessary data is lacking. As an illustration of the difficulty here I need only mention the inheritance of skin color in man. One would be inclined to say off-hand that it ought to be the simplest of matters to find out in this country, of all others, just how skin pigmentation is inherited in crosses of black and white races. Yet the question of whether skin color segregates (in the Mendelian sense) in such crosses is a matter by

no means definitely settled, and to all appearances not likely to be for some time to come, because of its complications and the impossibility of controlled experimentation.

The statistical method is practically the only one by which the inheritance of many human characters can be investigated. This is unfortunate in some ways, but chiefly because the sort of knowledge of human inheritance which we are able to get in this way is just the sort which is not the most valuable or useful. More than anywhere else it is true that in regard to human inheritance it is knowledge respecting the individual rather than the mass which we want, and which is most useful. Let the meaning be clear here: We wish to find the basic general laws of human inheritance. But the real compelling human reason why we want to know these is so that we may be able to predict with precision what will happen in the individual case. The statistician will tell us that all this is nonsense—a chimerical dream—because in inheritance the results are determined by an indefinitely vast number of small causes all acting together and hence anything like accurate prediction of results in the individual case is quite out of the question. This argument has plausibility and has carried weight. Latterly, however, it has lost much of its force because it has been very clearly shown that, while it is perfectly true that by statistical methods it is apparently impossible to get at any general law whereby one can predict the coat color of offspring horses or dogs (for example) following particular, individual matings, yet that the difficulty does not inhere in the nature of the case, but rather in the nature of the methods, since by direct and "individualistic" methods of research a general law has been worked out wherefrom one is, in fact, able to predict the coat color of horses and dogs in the individual case.

This discussion brings us to the writer's conception of the sort of relation between genetics and eugenics which would seem to be most natural (*i. e.,* scientific) and mutually most useful and helpful. This relation would involve the following propositions, which, because of lack of space, may be categorically stated, without specific references to the literature in support of the contentions made:

These propositions are:

1. That it is *a priori* probable, and so far as the observational data go is *a posteriori* the fact, that the fundamental and essential laws of inheritance are the same for man and the higher vertebrates (at least), and that, therefore, what is found to be true for one may be expected to apply to the other

(with such differences in matters of detail as are involved in differences of structure, physiology, etc., in the particular case).

2. That it is to be expected that matters in regard to inheritance which are new in principle and fundamental and general in character will in the future, as they have been in the past, more often be discovered through genetic studies on animals and plants rather than on man. This is probable because (*a*) direct experimental analysis by breeding can practically only be done with lower forms, and (*b*) because it is to this sort of analysis in terms of the individual that experience indicates we are to look for fundamental advances.

3. That eugenics may most profitably take the basic principles and laws worked out by the student of genetics with lower forms, and determine whether they apply to human characters, and with what limitations. That this is a far more promising line for eugenic investigation to follow, than for it to attempt to deduce by statistical methods (substantially the only ones available) *general* laws of inheritance directly from human data. This is true, because of the admittedly fragmentary character of such material under the best of circumstances as compared with what can be got from the breeding pen or garden with lower forms, and because of the inadequacy of the method to lead to the sort of knowledge desired.

Specific instances which appear to illustrate in a clear manner the substantial truth of the above propositions are to be found in recent Mendelian studies on man. Here we see the data of human inheritance being analyzed and co-ordinated by the application of certain fundamental general principles worked out by the student of genetics. Human color and hair color have been shown by Dr. and Mrs. Davenport, Holmes and others to be inherited in general accordance with simple Mendelian principles. Work on human skin color is yielding interesting if not wholly conclusive results. The fruitfulness of this method of attacking the problem of human inheritance is particularly evident in the case of disease. Nowhere is information of an "average" character more unsatisfactory, both for the individual and for society. To find, as has been done, that certain pathological conditions and abnormalities of structure and function in man are inherited definitely and clearly along Mendelian lines is an achievement of great value.

Such a result is of significance both for the race and for the individual. If there is a definite and clear-cut segregation of the abnormal and the normal within a tainted stock, it means

for the race the conservation of the useful energies, both reproductive and other, of many individuals who, under the sweeping condemnation of tainted stocks which a purely statistical eugenics advocates, would be prevented, if possible, from reproducing themselves. To the normal individual who segregates out of a tainted stock it means a life of normal, hopeful usefulness, in the place of that haunting fear or dread of "heredity" of which the extreme manifestation has been so vividly portrayed in the "Fall of the House of Usher."

It is the writer's opinion that the same general considerations as have been developed above in regard to the relation of biological experimentations to human inheritances apply to infant conservation as well, though here there is perhaps not so directly pertinent a body of organized biological knowledge to draw upon at once. But fundamentally the problem of infant conservation is the problem of fostering and maintaining a normal ontogenetic development of the individual human being, both ante-natal and post-natal. Here, again, direct scientific experimentation on the human subject is largely out of the question. Because of this, the basic data for all such matters as uterine and foetal physiology, effect of different environmental agents upon growth, etc., etc., must come from animal experimentation. The eugenist may then apply these results to the human species, learning the deviations and limitations peculiar to that species. In no other way, it seems to me, can we arrive at sound scientific guiding principles.

By way of conclusion, we may then say that the experimental study of inheritance in plants and animals is one of the main foundations upon which progress in scientific eugenics must rest. Genetics is at once the guide and the support of eugenics.

THE EUGENIC ASPECT OF THE ALCOHOL QUESTION IN ITS RELATION TO INFANT MORTALITY:

THE PHYSICIAN'S DUTY IN THE ALCOHOL QUESTION

By JAMES P. WARBASSE, M. D., New York

The alcohol question has been studied sufficiently to justify the conclusion that, chemically, alcohol is a poison, and, socially, a demoralizing and deteriorating influence of great potency. It behooves the medical profession to grasp the far-reaching importance of these facts and its own intimate relation to them. Is it awake to its responsibility and duty?

In answer to this question it may be stated that the medical use of alcohol has declined enormously in the last twenty-five years. This period really represents the golden age of medicine. The science of therapeutics has virtually been born in this period, and it is noteworthy that the decadence of alcohol should be coincidental with it.

It is also noteworthy that the decline of alcoholic therapy has taken place, not as a matter of sentiment or morals, but as a result of the scientific observation that alcohol lacks the medicinal value which for centuries has been accredited to it. It was discovered that in diphtheria, pneumonia, typhoid fever, tuberculosis, and the other conditions in which it had been employed, it was capable of more harm than good, and that, without it, patients could be gotten well even better than with it.

But it still seems to hold a place as a remedy in convalescence. The egg-nog, the beef-iron-and-wine, the sherry "for the blood," and the stout and porter remain among the established delusions. It is really not the physicians but the lay public who keep alive these superstitions. They are folk-lore traditions which die hard. The laity persists in suggesting with approval the use of these agencies and the physician in many instances has not the courage to awaken to his duty and put down his foot firmly and say "No." It is in most cases a matter of professional indifference. Now, in hospitals, where folk-lore has the least show of influence, alcohol as an internal medicine has been cast out at such a rate during this

period that its very extinction seems imminent. There still remains, as a stigma upon medicine, the disposition in private practice to humor the traditional, superstitious faith in its medicinal value.

There do not remain many physicians of standing who take the initiative in prescribing alcohol with the old-time nicety. It seems strange now to recall the fine distinctions that were once made—certain brands of wine for certain diseases, rum for the lungs, gin for the kidneys, and each color and quality of potation for a specific ailment. Even gout had its particular tipple.

Were there a good scientific rationale justifying its use, it would be employed pure, and the official drug for internal use would be alcohol. As is now the case, the official alcoholic drugs for internal use are whisky, brandy and wine—all more or less proprietary preparations. Of course, the only thing in these combinations which has a distinct action and for which they are used is the alcohol. They are not employed for the sake of the water, the infinitesimal amounts of the extractives, mineral matter, or the fusel oils. Their action depends upon the alcohol; and if the physicians who employ these liquors were sincere and scientific they would prescribe the accurate amount of pure alcohol and administer it with the necessary dilution. The persistent employment of the extractions and the fusel oils is surely not because anyone thinks they are of medical value.

I have always said that if medical men are to have influence in directing public health, they must first show themselves capable of taking care of their own health. They must practice what they preach or their preaching is insincere. It is not to the credit of the medical profession that, along with the other classes of men, it consumes its quota of alcohol. Too often, physicians who speak of it as a poison and warn their patients against it, provide it at their banquets, and encourage the man, who would prefer not to have it set before him, to drink it in order "to get the worth of his money." The medical man is not living up to his opportunities for human service unless by both precept and example he discourages the social use of alcohol just as he discourages its medical use. The doctor's habits at his club should tally with his practice at the bedside and in the consulting room.

The physician now knows that the constant user of alcohol has a reduced resistance; he dies when he contracts pneumonia; his syphilis is incurable; he is prone to contract nephritis and other cirrhoses; delirium tremens overtakes him

when he looks well and feels strong; he takes an anesthetic poorly and prolonged operation possesses extra hazards for him; his reactions are poor; he perishes among the first when exposed to cold or privation; his mental and physical efficiency are impaired; and he is always a candidate for inebriety, which will destroy himself and deteriorate his offspring. Possessed of this special knowledge, the physician should set himself squarely against the curse of alcohol. His influence should be thrown against it as a social duty. I am happy to know that he is rising to the obligation. It is a hopeful sign, for without the support of the medical profession the propaganda against alcohol can never prevail.

The bearing of these observations upon infant mortality is direct. Any agency which makes for adult morbidity and inefficiency increases infant mortality. That alcohol has operated as such an agency is believed by most students of social problems. It has depreciated the resistance of adults, rendered them less capable of bearing healthy children, and diminished their efficiency as parents. It has been and continues to be a demoralizing and deteriorating factor in racial development.

EUGENICS AND CHILD WELFARE

By PRINCE A. MORROW, M. D., New York

The present century is pre-eminently the age of the child. Never before in the history of humanity have the rights of the child to proper food and good hygienic surroundings, to parental care and state protection and to an education and training which shall fit him for the practical duties of life, been so generally recognized.

The right of the child to be well born, in conditions of vitality, health and physical vigor, with those hereditary endowments which fit it for the struggle of life, have not been so definitely recognized. From every point of view the most valuable heritage a child can receive from its parents is bodily soundness and health. Since healthy, capable citizens are the most valuable asset of the state, the production of sound, vigorous children and the conservation of their vitality are the most important concern of the nation. The first mark of the decadence of a nation is the deterioration of its child product. It is the purpose of this paper to consider the welfare of the child as affected by ante-natal conditions and especially the influence of certain specific infections in the causation of disease and degeneracy.

If, as stated by a distinguished writer, a man's destiny lies not in the future but in the past and is determined before he is born, a good heredity must be regarded as the most essential condition of the welfare of the individual.

Eugenics, the youngest branch of biological science, has for its object the search for knowledge relating to the improvement of the race through heredity—Euthenics, a newly coined term, has for its object the improvement of the race through environment. The aim of eugenics is the production of healthy children, fit for the struggle of life. The aim of euthenics is the healthy rearing of children, both the fit and the unfit.

The field of euthenics is broader and furnishes more immediate opportunity for practical constructive work. All social effort for the welfare of the child has been directed chiefly toward the improvement and amelioration of environmental conditions. The increased attention given to the proper food, clothing and housing, home economics, the amusements and occupations of children, the hygiene of infancy and childhood,

sanitary measures for the prevention of infant mortality, the correction of physical defects, the education of children, the industrial and manual labor training schools, the juvenile courts—all attest the increased consideration given to the welfare of the child through environment.

The field of eugenics has been comparatively neglected, partly because of the insufficiency of our knowledge of the laws of heredity but chiefly from the conviction that its processes cannot be intelligently directed or controlled. The theory of heredity as an important and dominating factor in the life destiny of the individual is to many a fatalistic and discouraging doctrine. As a writer has said, "we must take our heredity as we find it"—it is largely an affair of chance. It is determined by the parents, who in choosing themselves become the arbiters of the life destiny of their children. This brings up the oft debated question of the relative influence of heredity and environment, of birth and training upon the life expectancy of the child. We cannot, however, consider heredity apart from environment; they are not opposed, but cooperative factors—we cannot draw a sharp line of distinction between these factors and assign to each its precise measure of influence. A good heredity is the best groundwork for the play of environmental conditions; a bad environment simply picks off those who are by heredity least resistant. Observation shows that millions of the child product of the world perish precociously. It is a significant fact that while sanitary science has materially lessened the death rate of the adult population and lengthened the average duration of human life, the infant mortality rate has not been reduced. Twenty-five per cent of the total mortality occurs in infants under one year of age.

The perceptions of medical men, sociologists and others interested in child welfare have been awakened to a realization of the fact that a large proportion of this child waste is preventable. In this preventive work, efforts have been chiefly directed to the improvement of environmental conditions, but the infant mortality rate is as high as it was three-quarters of a century ago. Is this waste of child life due to inborn tendencies or to external agencies? There is reason to believe that the problem of infant mortality is as much, perhaps more, a biological than a medical problem.

There is another fact which may be noted in this connection, which has an important social and economic interest. Observation shows that the class known as degenerates is increasing much more rapidly than the general population,

and that their average duration of life has been lengthened. Within the past twenty years the average duration of the life of the insane, for example, has been increased eight years, while that of the general population has been increased four and one-half years. This is probably true of other defectives and is doubtless due to the multiplication of institutions for their accommodation and the better care they receive. Diseases may be cured, but degeneracy, which is usually due to some inherent defect in the physical, mental or moral nature of the individual, is rarely amenable to curative treatment. The degenerate *nascitur non fit;* like the poet, he is born, not made. It is only through applied eugenics that the vast volume of disease and degeneracy which flows through the channels of heredity can be prevented. Obviously this can be only accomplished through education and legislative restrictions upon the procreation of the unfit.

While environmental conditions constitute an important factor in infant mortality, the dominant influence must be assigned to the hereditary make-up of the individual. The term heredity is used in this connection in its common acceptation, rather than its strictly scientific sense, to denote what the child represents at birth, in structure, capacity for life, and resistance against disease. A hardy constitution transmitted by the parents constitutes a stronger defensive armor against the attacks of disease than a weak constitution, no matter how re-enforced and strengthened by favorable hygienic surroundings. A strong constitution, while not conferring absolute immunity against disease germs, often enables the system to dominate their action and throw off disease. The significance of pathological heredity is not measured alone by its effect upon infant mortality; it renders the survivors more susceptible to causes of disease in later years and lessens their ability to recover from its effects.

The value of eugenics in improving the race through a wise selection of its hereditary factors rests upon promise rather than actual fulfillment. In our present day civilization the influential motive to marriage is not the improvement of the race. Sentiment rather than science dominates men and women in all that relates to pairing and reproduction, with little thought as to their disqualifications as potential fathers and mothers. Our knowledge of the laws and principles of heredity have thus far been utilized in the culture of plants and the selective breeding of animals. It is doubtful whether the haphazard methods of human reproduction will ever be replaced by scientific selection.

The value of eugenics in the prevention of disease by the elimination of its hereditary factors gives more promise of practical results. Observation shows that many morbid tendencies and predispositions to disease are transmited from parents to children. Many diseases appear in successive generations. There is no better fact established than that the individual perpetuates himself as he is at the moment of procreation. The alcoholic, the consumptive, the syphilitic, the idiot each reproduce his own kind. When the public is sufficiently educated to a knowledge of the fact that much of the disease, degeneracy and waste of child life is due to transmitted tendencies, public sentiment will demand the exclusion from marriage and parentage of certain types, the reproduction of which leads to the degeneration of the race. About the only practical application of eugenics in this direction has been the surgical sterilization of confirmed criminals, which has been practiced on a large scale in Indiana. Many medical men and sociologists favor the same procedure in the case of idiots and other defectives.

One step has been taken in the direction of child culture before birth by attention to the environment of the infant during the period of its intra-uterine existence. After the creation of the new being by fusion of the germinal cells of the parents it is subject to various influences which may materially affect its development. Many of the qualities present at birth are not strictly inherited but impressed upon the organism during this period. As the mother furnishes the nutritive material which serves for its sustenance and growth, the condition of her own health and nutrition is of the utmost importance. All hygienic conditions which may prove inimical to its growth and development must act through the medium of the mother.

Newman, the highest recognized authority on infant mortality, declares that "the problem of infantile mortality is not one of sanitation alone, or of housing, or indeed of poverty as such, but is mainly a question of motherhood."

Since the mother is the supreme parent of the child, a high standard of physical motherhood is the most essential condition of racial advancement. However predominant the influence of the mother in relation to the life destiny of the child, whatever may be the value of child culture in the improvement of the race, the fact remains that a physical taint in the father may ruin the health of the mother and blight the future of the child. Observation shows that thousands of strong, healthy women, endowed with all those physical attributes

which fit them to become the mothers of the race, have their conceptional capacity extinguished, or their children may be stillborn, or die soon after birth; or, if they survive, they are condemned to carry through life the stigmata of degeneration and disease.

This brings us to a consideration of a class of diseases usually comprehended under the general term, Venereal, but which, from their almost exclusive origin in the social evil, I have designated as "Social Diseases." The special significance of these diseases in relation to eugenics is that they specifically affect the system of generation, sterilizing procreative capacity, or poisoning the germ cells and vitiating the processes of nutrition so that the product of conception is destroyed outright or blighted in its normal development. They are thus directly antagonistic to the eugenic idea which is: the production of a race, healthy, well-formed and vigorous, by keeping the springs of heredity pure and undefiled. The effect of these diseases is to produce a race of inferior beings by poisoning the sources of life and sapping the vitality and health of the offspring.

I shall pass over the dangers to the health and life of the mother which come from the introduction of these diseases into marriage, and which form the saddest chapter in the martyrdom of women, and direct your attention more especially to the racial dangers of these infections, manifest not only in the loss of potential citizens to the State, but in the production of physical and mental weaklings, the blind, the deaf-mutes, the epileptic and other degenerates which fill many of our institutions for defectives and impose an enormous cost upon the community for their support.

The racial danger of gonococcus infection is especially manifest in its sterilizing influence upon the procreative capacity of both men and women. Statistics show that 50 per cent of infected women are rendered permanently and irremediably sterile. The proportion of non-premeditated childless marriages, due to the husband's incapacity from this cause, is estimated from 17 per cent to 25 per cent, and as he is responsible for the sterility of his wife, fully 70 per cent of all the sterility in married life from this cause is due to the husband. "One child sterility," as it is termed, where one child represents the total productiveness of the family, is in many instances traceable to this infection. In addition it is a frequent cause of abortion. Contrary to the popular view, much of the sterility in married life is from incapacity and not of choice.

While gonococcus infection is not transmissible through heredity, it carries with it serious infective risks to the offspring. Fully 80 per cent of the blindness of the new-born, and 25 per cent of all blindness, is caused by the germ of this disease. Another serious risk is the infection of little girls, which is exceedingly difficult to cure, and often leads to arrest of the normal development of the maternal organs. Another serious result is a specific inflammation of the joints which may deform and cripple the child.

Syphilis is the only disease transmitted to the offspring in full virulence, killing them outright or blighting their normal development. When the father alone is infected the mortality is about 38 per cent. When the mother also becomes infected the mortality averages from 60 per cent to 80 per cent. Fully one-third of all infected children die within the first six months. Affections of the liver and of the central nervous system figure largely in the causes of mortality. Many of them die from native debility and inaptitude for life, a lack of what may be termed "biologic capital." Many of them succumb to slight causes of disease, or die without apparent cause.

The influence of syphilitic heredity is not only manifest in defective organization and the lack of vitality, but also in an incapacity of resistance against the germs of disease and inability to recover from its effects. Such children are sickly, constantly requiring medical attention. Dr. Bennie, honorary medical officer of the Children's Hospital, Melbourne, basing his observations upon 25 years' experience and a quarter of a million attendances or visits, says that fully 30 per cent of all the morbidity in the hospital was caused by syphilis, and that the syphilitic factor was present in over 40 per cent of the children who died. He estimates that 14 per cent of the families of Melbourne are infected with syphilis and that about 9 per cent of all the children in the community were tainted; and yet he declares this small percentage furnishes material for one-half of the pediatric work of the general practitioner and includes nearly one-half of the fatal cases.

The chances of an infected child dying under fifteen years of age is nearly seven times greater than that of the child free from syphilis. As an evidence of lowered resistance occasioned by hereditary syphilis, his careful analysis of all cases of infectious diseases in children shows that, exclusive of widespread epidemics, the chances of a syphilitic getting typhoid fever is nearly two and one-half times as great as for a non-syphilitic; for scarlet fever three times; for measles

three and one-half times; for diphtheria nearly seven times. Syphilis lowers not only the constitutional but the local resistance. Thirty per cent of the children with tubercular hip disease were congenital syphilitics. In tubercular meningitis the percentage was as high as 60. Forty per cent of the cases of gastro-enteritis were syphilitics.

Even when the subjects of inherited syphilis successfully run the gauntlet of the diseases incident to infancy and childhood, they do not always escape the effects of the parental infection. They are subject to various organic defects, or stigmata of degeneration, which are especially liable to occur at the period of second dentition, the period of puberty, or may be delayed to the 10th or 30th year, or even later. They belong to the category of late hereditary syphilis, our knowledge of which is a comparatively modern acquisition.

A final result of hereditary syphilis is the inability to procreate healthy children. If they grow up and marry they are liable to transmit the same class of organic defects to the third generation.

DISCUSSION

Prof. H. B. Ward, of the University of Illinois: I have been interested in this particular subject for a long time, particularly Eugenics. I have had the pleasure of discussing it from a number of points. There is one thing that necessarily comes to my mind and I want to express it right here. That is in regard to building up theories and then finding the facts that coincide with these theories. It is a very simple thing for the majority to build up a theory that has a certain amount of truth in it, but at the same time it is not actually the whole truth. It is also true that a real investigation of these problems has only been started within the last few years. Any attempt to go far from the facts is likely to lead us to the establishing of theories, which will plug progress. We have an absolute scientific fact from which there is no escaping, but when we begin to theorize we are apt to tread on very thin ice. In other words, we are going through a very thick forest in the very dim twilight, and we are very likely to loose our way. We do not know absolutely. We must experiment to a certain extent, as the machinist must do in order to perfect his particular work, before we come to the real statement of the case. Statistics have not yet been submitted to record which will enable us to draw conclusions from them. The only thing to do is to study this problem from every angle. Then we must not adopt a theory which will stop our work, but which will be of help to us. An important line of effort is to determine what way the growing embryo is influenced by the mother. There is no doubt

whatever that the health of the mother is all important. There should be a certain conservatism on the part of scientists about accepting any theories without careful study. It makes very little difference how much money we accumulate in this richest country in the world. It makes very little difference—it makes absolutely no difference—if we come to be the richest country in the world and have not vitality in the human organism. So the problem of eugenics certainly lies at the very foundation of the things which are efficient for our work. We cannot lead this race in a limited circle alone. All the men and women who have any conception of their duties to others and any feeling of responsibility of things should study this problem themselves. The only way to do this is through some organization such as this, through the influence which it exerts and spreads out through the country from community to community and from individual to individual.

Question (By a Member): I would like to ask one question. Why is it that when we have a case of smallpox come to the city of Chicago we think it very necessary for the immediate health of the community to send such cases to the pesthouse, while we allow at large two diseases, in effect very vital to the health of the race—syphilis and gonorrhea—which have been proven by experimental work to be practically incurable? Syphilis affects the entire system. I think that such people ought to be confined to pesthouses, for they are much more a menace to the race than smallpox, which is only a temporary disease.

HEREDITARY TUBERCULOSIS AND INFANT MORTALITY

Professor H. E. JORDAN

(NOTE.—Desiring that part of the general discussion should centre about this topic, but unable to find a willing contributor, the chairman has prepared the following brief outline of what he believes to represent the status of the matter respecting hereditary phthisis, as he gathers more especially from the recent Memoirs of Professor Karl Pearson.)

After deducting for strictly acquired tuberculosis (i e., acquired by reason of very adverse conditions), there still remains a considerable quota which must be ascribed to hereditary predisposition. Much of the latter might probably have been kept undeveloped under a better envorinment, but the same predisposition would nevertheless be transmitted to all or several of the offspring, depending upon the character of the mating. Affected offspring are again handicapped with a weakened constitution and a non-resistant pulmonary epithelium. Poor resistance to tubercle bacillus is most likely only incidental to a general lowered resistance, a condition which helps to swell the infant mortality rate. Considerably more of strictly scientific investigation in this field is required before very definite statements can be made. But there is absolutely no scientific basis for the dogma of certain health leagues that "Tuberculosis is not Hereditary." Prof. Karl Pearson, of the Eugenic Laboratory, London, has brought forth most cogent proof that phthisical diathesis is just as hereditary as any human characteristic we know about. Pearson takes account of infection through members of the same family, but his analysis of the data in hand reveals no evidence that direct infection is in any way important as compared to the heritable diathesis. He is "prepared to accept with some reservation a sensible but probably not very large infective action from the available statistics of pulmonary tuberculosis." He finds that when the husband is tubercular there is a probability that the wife also will be found tuberculous. This however he thinks is due largely to "assortive mating." For, despite the vastly greater opportunity for direct infection between husband and wife as against brother and brother, the degree of resemblance (the "correlation coefficient") in the former case is "not more

than .17 or possibly .25 at a maximum," while in the latter case it is about .40 to .50. The further fact that about 38 per cent of all tubercular patients in sanatoria come from tuberculous families is very significant as indicating hereditary transmission of a predisposition to this disease.

DISCUSSION

Dr. Sachs, Chicago: I attach very little importance to hereditary tuberculosis. My position is based first on the fact that there are very few cases of tuberculosis found in infants and the same pertains to almost the same extent in reference to animals. At the same time there is this hereditary tendency which at the present time is not clear to even the most experienced men of the medical profession.

We know very well that a very large proportion of tuberculosis cases are found in some families where there are no other cases of tuberculosis, so to speak, but we investigate the parents, the grandparents, and go just as far as we can. Most tuberculosis is found in families where there are no previous tuberculosis cases. We do not follow out the family tree of the various families. Tuberculosis is such a prevalent disease that no matter where you are studying you will find cases of it here and there. Admitting that there is a hereditary tendency, I believe that is a very small factor compared with infection. The solution lies in education and I want to take this opportunity to compliment the far-sighted policy of this community that has given us a large annual income to fight tuberculosis in Chicago. In no other public enterprise has the city of Chicago been so liberal as in providing an income of from one to one and one-half million dollars to fight tuberculosis in this city. This has made possible a large force of nurses. As far as tuberculosis is concerned its elimination does not lie in any legal prevention of marriage among the tubercular.

Question (Chairman): Am I correctly informed when I recall that about 38 per cent of all tubercular cases in sanatoria come from tubercular families? If so, what is the meaning of this to your mind? Would you ignore entirely the fact of heredity?

Dr. Sachs: To my mind most of these cases are the result of infection, from tubercular persons or tubercular surroundings.

Question (By a Member): Then the only remedy lies in the isolation of infectious cases?

Answer: If we are able to provide sufficient and proper hospitals for all tubercular cases, the tubercular mortality will surely fall.

Remark by a Member: Legislative marriage restriction should refer to those about whom there is absolutely no doubt.

EUGENICAL LIMITATIONS TO THE PREVENTION OF INFANT MORTALITY

C. B. DAVENPORT, Ph. D., Cold Spring Harbor, L. I.

In a broad way, child culture may be said to be a branch of agriculture. Despite the fact that we do not attempt to control matings of men as we do those of the lower animals and plants still *they are controlled* and some day society, taking a broader view of its duties, will control them still further. Even though marriages are not controlled, we may study them and their product and understand which are good and which bad from the standpoint of their produce.

Now of late years the conviction has arisen that we are breeding too many defectives and insane; and to understand this result we have only to look to the nature of the matings and our treatment of the progeny in comparison with the methods of the best agriculturalists.

If a watermelon grower finds that his stock is non-resistant to the attacks of the wilt parasite he might, following the modern medical method, spray his plants so as to kill the fungus. Collecting and planting the seeds of the melons that pulled through he would go through the same operations of saving his melons year after year. The melon grower who would do this would certainly be regarded as quite behind the times. The proper procedure is to leave his field of melons alone for a generation and let those die which are worst affected. Some probably will be found to be immune from the wilt parasite; let those be selected for seed; but the grower would not breed from those plants that he had to protect to save.

The lesson for mankind is this: Our proud art and science of medicine has reached a point where, each year, thousands who would formerly have died have been brought up to the reproductive period. They have a few childen and then die; perhaps at an early age. What has been done? The pride of a surgeon and that of a nurse in their professional success have in each case been satisfied; and *several* children in place of one, have been left for the greater skill of surgeons and nurses of the next generation to prop up and bring along to the reproductive period. The feeble-minded, who are unable to take care of themselves, are taught some measure of self-

support and then set free at the reproductive period; and the melancholics and those with dementia precox are kept from harm in our hospitals for the insane and then sent home "cured," too often to reproduce their like. Most of those beneficial agents by which nature for hundreds of thousands of years has worked to eliminate the socially unfit are being destroyed in man's pride at his control of nature. But in the matter of maintaining *racial* strength I suspect nature will win over man. Already man himself is providing the means that will paralyze his arm; and these means are universal mental deterioration. When the largest prizes of our best endowed medical schools and universities call in vain for superior men to take the place of those who have passed on, then it will be nature's turn to laugh.

But what can be done; shall the infants be left to die? By no means. Exercise your art upon them as you will; but keep the weaklings from reproduction even as the worst of the insane and criminalistic are now restrained. Crowd into their lives all joy and happiness; but when it comes to reproduction, say—"this is not a personal matter; this is society's concern and society says 'no.' "

In addition to the papers printed in full in the preceding pages, a paper was presented at the Section meeting by Mrs. Max Polachek, of Chicago, on "Parental Home Culture, or What We Owe Our Children."

SECTION ON HOUSING

Friday, November 17, 10.30 A. M.

CHAIRMAN

MR. LAWRENCE VEILLER, Secretary and Director, National Housing Association, New York City

SECRETARY

MR. JOHN IHLDER, New York

As a result of the conference on Housing, the following resolutions were adopted by the Section, and were presented to the Association at the general session of Friday afternoon, November 17. By vote of the Association, Resolutions II and III were referred to the Executive Committee for favorable action if practicable. The resolutions were then carried, as amended.

RESOLUTIONS

WHEREAS, Bad housing conditions more directly and seriously affect the welfare of the mother and the infant than any other classes in the community, and

WHEREAS, The control of bad housing and sanitary conditions in the home devolves upon health authorities in most cases, and

WHEREAS, The appropriations for health and housing control in American cities are notoriously insufficient, and

WHEREAS, The appropriations for such control of the Chicago Health Department are less than 25 cents per capita; *therefore, be it resolved,*

I That the Section on Housing of the American Association for Study and Prevention of Infant Mortality *hereby recommend* that every means possible be taken to enlist support for the Housing Reform Movement as vital to the purposes of this Association, and *resolved,*

* II That this Association urge upon the city officials who control the allotment of municipal funds the great importance of increasing appropriations for health purposes, and that the executive committee be instructed to send a copy of the resolution to the Mayor of each American city. *Resolved,*

III That a standing committee be appointed to secure uniform statistics on infant morbidity and mortality; that they be authorized to prepare a standard card and request replies from as large a number as possible of municipal health officers and workers connected with the affiliated societies and institutions of this Association.

*Resolution II. was not considered practicable, and was laid on the table. by the Executive Committee.

THE RELATION BETWEEN BAD VENTILATION AND INFANT MORTALITY

C.-E. A. WINSLOW, Associate Professor of Biology, College of the City of New York and Curator of Public Health, American Museum of Natural History, New York

So far as I am aware we have no significant data which indicate with any quantitative accuracy the effect of air supply upon the health of either infants or adults, except in institutions where special improvements have been made under observed conditions, and in factories where industrial statistics give us some slender basis for sound deduction. In dealing with infant mortality, it is the ventilation of dwellings, and particularly of tenements, with which we are concerned. This is, so far as I am aware, an unworked field of sanitary investigation. General statistics as to the high death rates associated with overcrowding are, of course, available. In one of the most careful of such studies, for example (L. M. Bristol, The Relation of Congestion of Population to Mortality in Boston, New Boston, I, 201), results were obtained, shown in the table below, which indicate a direct relation between overcrowding and a high corrected death rate, the highest comparative mortality, over 160, occurring in districts with 12 persons per dwelling, and the lowest, under 90, with about 7 persons per dwelling. In the January, 1911, Monthly Bulletin of the N. Y. City Board of Health, interesting statistics for infant mortality in certain blocks were given which showed a rate of only 50.8 deaths per 1,000 births in a good residential district with 216.9 persons to the acre, against 318.8 deaths per 1,000 births in a negro quarter with 1,050.1 persons to the acre. The high death rates associated with overcrowding are, however, due to a complex of many causes—sanitary, hygienic, racial, economic, social, protoplasmic. In the case of the New York infant mortality rates just quoted, the effect of factors other than overcrowding shows on the face of the returns, for the most crowded district studied, with 2,471.9 persons to the acre, had a rate of only 156.4 deaths per 1,000 births. Science progresses only by disentangling such coils, isolating a single variable factor and then studying its effect. We know from

other lines of evidence that bad atmospheric conditions are harmful. How they are harmful, and how harmful they are, in relation to infant mortality we do not know. It is perhaps worth while to call attention to the problem in order that it may be more successfully studied in the future.

TABLE I

RELATION OF OVERCROWDING AND MORTALITY

Boston, 1901-1905 (Bristol, 1910)

	Group I	Group II	Group III	Group IV	Group V	Group VI	Group VII
Comparative Mortality in certain Groups of Wards	80-90	90-100	100-110	110-120	120-130	150-160	160-170
Overcrowding, persons per dwelling, same Groups	7.42	7.83	9.50	10.53	10.38	10.18	12.18

In the first place, a few words must be said as to what constitutes bad ventilation and how it affects the human organism. It was long believed that expired air contained some mysterious morbific matter which exerted a direct poisonous effect. The evidence for the existence of such substances has not been substantiated, and a mass of experimental evidence accumulated by Flügge in Germany, by Haldane in England, by Benedict and Milner in this country, and by many others, has shown that the chief, if not the only, effect of stale air is due to its high temperature and humidity, and its resulting effect upon the heat regulating mechanism of the body. As soon as the temperature passes 70 degrees the tone and efficiency of the bodily machine begins to be lowered, and if the air be also humid, the harmful effects are magnified. At 78 degrees with saturated air the whole balance of the system is upset and the body temperature rises, an actual state of fever setting in. These harmful effects are intensified by the fact that a layer of air, heated and moistened by the exhalations of the skin, clings about the body forming what Sedgwick has called "an aerial blanket." The breaking up of this zone of concentrated discomfort by circulation of the air is a most important factor in good ventilation. Leonard Hill, in a recent experiment, placed eight men in a closed chamber of 106 cubic feet capacity, where after half an hour the wet bulb temperature rose to 85 degrees F. They experienced all the symptoms of grave discomfort associated with "bad air," but were at once relieved by starting electric fans which, without chang-

ing the total amount of air in the chamber, stirred it up and cooled the body surfaces of the occupants.

What we chiefly mean, then, by bad ventilation is an overheated, over-moist and stagnant atmosphere, and such an atmosphere must exercise a direct and important effect on at least two of the most serious causes of infant mortality.

I have compared below data in regard to the relative importance of the various factors in the infant death rate from Holt's classic studies, from statistics exhibited a year ago at Baltimore by the Maryland State Board of Health, and from a recent study by Koehler and Drake, of Chicago. The results differ in detail, but it is clear that diarrheal diseases and respiratory diseases (pneumonia, bronchitis, and influenza) are by far the most important causes of preventable infant mortality and together make up about 50 per cent of the total.

TABLE II

RELATIVE IMPORTANCE OF PRINCIPAL CAUSES OF INFANT MORTALITY

	ACCORDING TO		
Percentage due to	Holt	Maryland S. B. H.	Koehler and Drake
Diarrheal diseases	28.0	38.5	39.8
Congenital defects and childbirth	31.3	17.1	24.0
Pneumonia, bronchitis, influenza	18.5	14.7	20.6
Acute contagia	5.4	5.0	3.2
Tuberculosis	2.0	2.5	1.6
Venereal diseases	1.2	——	1.3
All others	13.6	22.2	4.8

No one will probably doubt the relation between overheated, badly ventilated living rooms and the respiratory diseases, although I am not acquainted with any statistical data which really demonstrate this relation or indicate its quantitative importance. The Chicago Health Department, in its valuable educational leaflets, groups Tuberculosis and Pneumonia together as Bad Air Diseases and the classification is probably justified in a considerable degree. It is a matter of common experience that all sorts of respiratory diseases are apt to affect those who live indoors in an overheated atmosphere and are exposed to the shock of sudden change from such conditions to the cold outer air of winter. After such diseases have been contracted it is well recognized that recovery is much facilitated by open-air treatment. Holt, in the last edition of The Diseases of Infancy and Childhood, says, "Nothing is more important for an infant sick with acute pulmonary dis-

eases than plenty of pure air." So far as the effect of bad ventilation upon the inception of these diseases is concerned, we much need statistical data which, so far as I am aware, are not now available.

The diarrheal diseases are less commonly regarded as "Bad-Air Diseases"; yet I believe the factor of poor ventilation may be almost as important in this class as in that of the pulmonary diseases. It is partly the contrast between overheated rooms and outdoor cold, and partly the directly lowering effect of the overheating which favor the pulmonary diseases of winter. It is the direct physiological effect of outdoor heat intensified by stuffy, ill-ventilated rooms which makes the diarrheal diseases so deadly to the tenement child in summer.

It was originally thought that the diarrheal diseases of children were due chiefly to the general constitutional effects of high temperature, to an action analagous to heat prostration. Then it was shown that such diseases were closely correlated with the nature of the food and dirty milk came to be considered almost the sole factor of any importance. The pendulum swung somewhat too far, but today it is possible to formulate a more rational view which shall take account of both factors. The normal food for the child is mother's milk; but it has a certain tolerance for abnormal diets and if everything else is favorable, may frequently thrive even on city milk. As soon as the physiological tone is lowered, however, the digestive tract becomes abnormally sensitive and food which was once tolerated becomes a poison. Approaching the subject from the side of curative rather than preventive medicine, we may refer again to Holt, who says in this connection. "Fresh air is of the utmost importance for all diarrheal cases in summer. No matter how much fever or prostration there may be, these cases always do better if kept out of doors the greater part of the day. Nothing is so depressing as close, stifling apartments."

Evidence in regard to the effect of ventilation upon the causation, rather than the treatment, of diarrheal diseases must be drawn chiefly from our knowledge of their seasonal prevalence. All intestinal troubles, of infants and adults alike, reach a maximum in summer and early autumn. It has often been assumed that this relation could be explained by the fact that the germs were favored by warmth and multiplied in the environment, so that more of them gained access to the body. This is no doubt true, but it does not wholly account for the facts. In the case of typhoid fever, for example, it was shown at Washington that the increase of

cases followed so quickly after hot weather as to be most reasonably accounted for by assuming that persons who had been carrying typhoid bacilli without suffering from the disease were suddenly weakened so that they succumbed to it. In the Indian Army it has been noted that the sharp summer rise of typhoid among the white troops has no parallel among the native troops, presumably better adjusted to the intensity of the climate.

In the case of the diarrheal diseases, it is noteworthy that the death rate is low in the winter months even among children supplied with the dirtiest of city milk. We have few data which will help us to disentangle the problem of the

TABLE III

RELATION BETWEEN SEASON AND MILK SUPPLY AND INFANT HEALTH

		PERCENTAGE OF CHILDREN WHO		
	Milk Supply	Did Well	Did Fairly	Did badly or Died
Winter	Store and Condensed	83	11	6
	Good Bottled	68	26	6
	Best Bottled and Breast	80	7	13
Summer	Store and Condensed	29	29	42
	Good Bottled	50	23	27
	Best Bottled and Breast	60	24	16

relative importance of various factors in the summer death rate. The air temperature is higher and the milk worse in summer and both causes tend to produce infant diarrheas. In order to know the relative weight of each factor we ought to be able to compare the winter diarrheal death rate among the breast and bottle fed on the one hand, and the diarrheal death rate among the breast fed in winter and in summer on the other hand. Data of this kind are not available for any considerable American population, so far as I am aware. In the admirable study made by Holt and Park, full statistics were collected for about 245 children in winter and 435 in summer, from which I have prepared Table III above. It appears that in winter there was no appreciable difference between the health of the children, whatever their mode of feeding; 70-80 per cent did well in either case. Out of 103 children fed on store milk and condensed milk 86 did well and 6 did badly or died. Out of 15 children fed at the breast or on the best quality of bottled milk, 7 did well and 2 did badly or died. On the other hand, in summer the health of the children was directly related to the milk supply. The

breast-fed and best-bottled-milk class showed 60 per cent doing well, the good-bottled-milk class 50 per cent, the-store-and-condensed-milk class only 29 per cent. The striking thing is that of the children receiving breast milk and best bottled milk, only 60 per cent did well in summer against 83 per cent of the class receiving store and condensed milk in winter. The figures are too small for very sweeping conclusions. There were only 9 breast-fed children in winter and 6 receiving best bottled milk; in summer the corresponding figures were 31 and 12. Even these data, however, strongly suggest that summer heat *per se* has an important effect on infant mortality. The authors in their own summary conclude that "The depressing effects of great atmospheric heat, *i. e.,* a temperature in the neighborhood of 90° F. or over, were very marked in all infants, no matter what their food. Those who were ill were almost invariably made worse and many who were previously well became ill." Heat may be extensively fatal only when combined with an abnormal food supply, but temperature is one of the two important co-operating causes and perhaps the most far-reaching of the two in its effects.

Rietschel, of Dresden, has made important contributions to this subject along two lines, first, by showing experimentally that at a temperature of 86° F. the heat-regulating mechanism of an infant is deranged and a state of fever sets in, and, second, by recording the excessive temperatures actually existing in tenement dwellings (Zeitschrift für Kinderheil kunde, I, 546). His observations were made mainly during the summer of 1910, which was a cool summer in Dresden, but the differences between indoor and outdoor temperatures were striking. The outdoor temperature during August and early September never passed 86 degrees F. and was only twice over 79 degrees. In one tenement dwelling (the worst of those studied, it is fair to say) the temperature on 9 of the 38 days observed did not fall below 77 degrees and on 4 days the observed minimum was 82 degrees. The maximum daily temperature in the tenement was never below 75 degrees, and on only 3 days out of the 38 below 82 degrees; 12 times it was over 86 degrees and 3 times over 97 degrees.

It seems reasonably clear that hot and humid and stagnant air which constitutes a serious menace to the health of adults is even more harmful to infants. It upsets the heat-regulating mechanism of the body and in ways which we do not clearly understand profoundly impairs its vitality and its ability to resist disease. In winter such atmospheric conditions in the dwelling predispose to pneumonia, bronchitis and other respir-

atory diseases; in summer they contribute in an important degree to the prevalence of diarrheal diseases, particularly when combined with an abnormal milk supply. These conditions of heat and humidity and stagnation are in winter wholly due to bad ventilation, since there is an ample supply of cool, dry air without, if it can only be introduced without too much discomfort to the occupants. In summer even the outer world is badly ventilated in the sense that it is over-hot and over-moist; but the unavoidable debility due to this cause is immensely increased by the fact that in rooms not provided with thorough ventilation the indoor temperature so much exceeds that of the outdoor air.

These general conclusions are, I think, justified by information now available. We greatly need, however, more detailed and accurate information in regard to the importance of the several factors in question. We ought to know more definitely how far diarrheal disease is due to bad feeding and how far to high summer temperature. We ought to have a clearer idea as to the relation between overheated dwellings and pneumonia. The American Association for the Study and Prevention of Infant Mortality has an excellent opportunity to do work of fundamental importance along such lines. There are hundreds of physicians and visiting nurses studying infant mortality today. Cannot their work be correlated so as to be of general value? I believe the Association might well establish a permanent standing committee on the statistical study of Infant Morbidity and Mortality, such Committee to prepare a standard card on which returns might be made by as large a number as possible of the workers connected with our affiliated societies and institutions. Such a card for each infant should be filed on the death of the child or its attainment of the age of one year. It should give at least the date of birth, the date and cause of death in fatal cases, the nature of feeding and some information in regard to living conditions, including, if possible, determination of temperature and humidity. It is, of course, essential that such statistics should be as full for the survivors as for those who die. We have plenty of data as to fatalities. It is the basic comparison with surviving population, that we lack. If the Association should take up such an undertaking it would be of inestimable value in the intelligent direction of the movement for which it exists. The collection of the data would also, I believe, have a not unfavorable reaction on the physicians and nurses themselves. Observations in regard to atmospheric conditions, which are now so seldom made, would have a special educa-

tional value and might perhaps hasten the day when a visiting nurse will carry a sling psychrometer upon her round of inspection and will observe the heat and moisture in the atmosphere quite as much as a matter of course as she now inquires into the kind of milk with which the infant is supplied.

FLIES AND PRIVY VAULTS

By ALICE HAMILTON, M. D., Hull-House, Chicago

One feels as if one must apologize for saying anything nowadays upon the threadbare subject of flies as carriers of infection. It is now some nine years since we at Hull House made our first excursion into what was then a fairly fresh field, and when I return to it after this interval of time I find that the public has been so well instructed on the activities of the now universally execrated house fly that they may almost be said to know more about it than there is to know. They can go to moving picture shows and there see a fly performing feats that were not dreamed of in our simpler philosophy. So that it seems almost superfluous to mention the fly in any way now unless one were to try to winnow out what is really important and definitely established from the vast store of fact and fancy that has been built up around this special carrier of disease.

The idea that prevailed almost universally up to very recent times was that the house fly was a beneficent consumer of garbage, but the contrary opinion, although never generally held, has found occasional expression during the centuries from the lips of unusually acute observers. Now and then we find in the literature that someone has traced the connection between an unusual pest of flies and a certain epidemic of disease. There are those who would find the earliest instance of this in the story of the plague of flies which afflicted the land of Egypt, as related in the Book of Exodus, and which was followed by a murrain of cattle and by the devastating sickness that carried off all the firstborn of the Egyptians. More unmistakable is the statement made by a certain bishop in Denmark in the fifteenth century and by a Venetian physician in the sixteenth century, to the effect that the epidemics of contagious disease observed by them had been ushered in by enormous swarms of flies. The great Sydenham, who revolutionized so much of medical science, declared that, contrary to the popular view, a summer of abundant flies was a summer of sickness, and we are told that there is a curious old Dutch proverb to the same effect.

It was only, however, in the latter part of the nineteenth century that the theory of fly-borne infection began to really

gain ground, and it was chiefly as a result of observations made by English army surgeons in India and in Malta during cholera epidemics. One English physician, who was in Malta during the terrible epidemic of 1849, wrote that the idea of the connection between flies and the spread of the disease first came to him when he saw hordes of these insects gorging themselves on cholera dejecta and then, as he expressed it, disgorging themselves on the food in the neighboring mess tents. A British warship left Malta and put out to sea with cases of cholera on board. When the disease had begun to die down, the ship approached the shore close enough to be visited by swarms of flies, and although nobody went on shore and no food was brought on board, the disease broke out afresh. In India, where flies abound, many proofs were found of their agency in spreading disease and bacteriologists found it easy to show the presence of the actual germs in flies caught about post-mortem rooms or sick rooms. An interesting epidemic occurred in a jail in India where the infection was confined to the men's side. The supply of food and drink was the same for both the men's and women's quarters, but flies had access to only the former, and a pitcher of milk left exposed on the men's side was found to contain the bodies of flies and quantities of cholera bacilli. An epidemic was raging in the village outside.

At the end of the nineteenth and the beginning of the twentieth century two vast experiments were made which conclusively proved the part played by the fly in spreading typhoid infection. These were carried on in the camps of American soldiers in the Spanish-American War, and in the camps of the British in the South African War. The arrangement of open trenches filled with dejecta with a thin layer of lime on top and in close proximity to unscreened mess tents furnished abundant opportunity for the demonstration of what flies can do in the way of carrying living typhoid germs and depositing them on food. In the American camps it was noted that there was much less typhoid among the officers whose mess tents were screened. It was also noted that typhoid fever died down with the disappearance of the flies, although usually such an epidmic lasts on beyond frost. In Chicago it was possible to trace to the agency of flies, in part, at least, the spread of typhoid fever during the last great epidemic in 1903. The neighborhood which, with but 1/36 of the population had 1/6 of the cases, was full of neglected and overflowing privies. Flies caught in privies and kitchens were found to be carriers of typhoid bacilli.

Not so much work has been done to demonstrate the spread of dysentery through flies, but there is every reason to believe that what is true of typhoid germs is true of the germs of dysentery, because in both cases we have a germ that is fairly long lived under ordinary conditions and that thrives on our ordinary foods. An epidemic was recently described, occurring in an insane asylum, where the infection was in all probability carried by flies.

The summer diarrhoea of babies may be caused by many different kinds of germs. Recently English authors have been laying a great deal of stress upon the importance of flies as carriers of this sort of infection, and have gone farther than most of us would be willing to follow them, one physician even asserting that the reason why babies fed on artificial foods or condensed milk are more apt to sicken than those fed on cow's milk is because the former attract so many flies. Jackson, of New York, has plotted curves of summer diarrhoea and of the prevalence of flies and finds that they agree, both being at their height during the last week of July and the first week of August. The Merchants' Association of New York City has published a series of very interesting maps giving the location of cases of summer diarrhoea and showing how these cases are in the tenements clustered around the openings of sewers in the river, where quantities of fecal matter cling to the piles of the docks and are visited all summer by swarms of flies. It is needless to point out that in both these cases a good many other factors come into play besides flies.

Now, of course, if flies are to carry disease, three things are necessary—the source of infection, which must be accessible to the fly; the fly, and the food on which the germs are to be deposited. No matter how many flies there are, they cannot carry germs unless they can gain access to them. Flies feeding on garbage cannot fly into a milk can and infect it with typhoid fever, because there is nothing in the garbage in any way connected with typhoid fever. If, then, we could be sure that our disposal of germ-containing dejecta were absolutely fly proof, we need have little fear of the flies, but there are many reasons why it is impossible for us ever to feel this certainty. Everyone knows that the discharges from typhoid patients are dangerous and must be covered and disinfected, but very often no attention is paid to the urine, and usually all precautions are relaxed when the patient is convalescent, yet the urine may have thousands of typhoid germs to a single

drop and the discharges may continue to contain typhoid bacilli for weeks after the fever is over.

Still greater is the newly discovered danger from the so-called bacillus carriers, that is, people who are in perfect health and who may not even have had an attack of the disease, but who yet harbor in their bodies and discharge from time to time typhoid bacilli or cholera bacilli. It is stated that from two and a half to four per cent of the people who have had typhoid fever become carriers, and this condition may last for years or even throughout life. Last summer the cholera bacillus carriers constituted the most difficult problem for the physicians of the port of New York, and typhoid carriers are sources of infection all over our country. It can be seen, therefore, that even when there is no active typhoid fever in a given neighborhood, there may be an outbreak of the disease as the result of infection from a carrier. Such a danger cannot be directly guarded against, for the carrier is only discovered after the injury is done. All that we can do is to guard against those things which allow infection to be carried, to act as if everybody might possibly be a bacillus carrier and to make it impossible for infection to be spread by human dejecta. The typhoid carrier need not be a danger. A couple of years ago I happened to be making a study of this subject and I found two women who had evidently been carriers for years, but neither of them had ever infected anyone because they were women of cleanly habits, living in houses equipped with modern plumbing. Such a woman living in the country or a small town and using a privy might, even though she were very careful as to personal cleanliness, be the cause of typhoid fever in her own home.

Let me describe a few of the characteristics of the typhoid bacillus which make it an easy matter for food to be infected by the agency of flies. In the first place, this germ can live a long time in soil, even as long as three hundred and fifteen days. It has survived in soil a temperature of 13° above zero for three months, and the summer sun for twenty-five days. When flies feed on typhoid discharges the bacilli continue to live and multiply in their bodies for as long as twenty days, and one observer has found that flies which develop from larvae deposited in typhoid faeces contain living bacilli in their bodies. Then the things we use for food are excellent food for typhoid bacilli. Indeed, when we wish to grow these germs in the laboratory we use pieces of boiled potato or broth or meat gelatine or milk, for these are what the germs

thrive best upon. We do not use butter, but we might, for they can keep alive one hundred and fifty days in butter.

Take, then, the condition of things in a farmhouse, where the people are cleanly in their habits, but where they use an ordinary privy. We will assume that a typhoid carrier in the shape of a healthy farmhand comes to this place in July. Now, of course, this is at the height of the fly season, and swarms of flies would visit the privy, feed on its contents, deposit larvae there, and then swarm to the house, drink the milk and drown in the pail, deposit specks on spoons and forks, potatoes and meat, and in a little while one of those mysterious house epidemics would occur which no one could explain. The well water would be examined and found pure, and everyone would be baffled because, with pure well water and no typhoid fever anywhere in the neighborhood, how could the infection have been carried?

We cannot isolate bacillus carriers, but we can prevent fly-borne infection by preventing the breeding of flies through the disinfection of manure, then by preventing their access to human dejecta, and so far as possible preventing their access to food. For all these precautions the Public Health and Marine Hospital Service now has carefully worked-out plans, and it is easy to get instructions as to the cheapest way of killing larvae in manure and as to the construction of model privies.

Howard tells of certain English officers in India who had trouble in persuading the native officers to recognize the danger of allowing flies to swarm over the food. Finally they appealed to the fastidiousness of these Hindus and pointed out to them that it was disgusting to eat food contaminated by the discharges of insects and they found that this appeal was much more successful. It may be that we also shall accomplish more by appealing to the feeling of fastidiousness in people than by trying to rouse their fear of disease.

DISCUSSION

Dr. Charles B. Ball, Chicago: It cannot be too strongly urged that the best test of our civilization is not the building of sky-scrapers, public libraries and art galleries, but is the question of the care exercised by the community for the disposal of human wastes. Although the means by which the community must be protected from the spread of disease by the adoption of proper precautions are known to scientists and students, like Dr. Hamilton, they are not at present well recognized by the community at large. We are, therefore, greatly indebted to Dr. Hamilton, and others who possess these facts, for repeatedly bringing them to our attention.

As long as many members of the community are still unaware that privy vaults are not alone a nuisance but also a menace to health, it will be hopeless for us to attempt their replacement by improved toilet facilities. As long as there are in the city of Chicago 8,000 privy vaults and in some other of our large cities many more than this number, so long it will be hopeless for us to attempt to get rid of the objectionable types of water closets which are now so prevalent. So long as contagion is spread by the common use of toilet facilities by a number of families, a practice authorized even now by many health codes, so long must agitation of this subject, however unpleasant, be made in public. Although some question has been raised among those having the greatest opportunity to judge of the relative values of expenditures for various lines of health control and a disposition seems to have arisen in some quarters to minimize the evils of the privy vaults, the garbage pile and the manure box, it certainly seems well worth while to invite attention to the importance of this indirect means of spreading contagion.

Dr. J. F. Edwards, Pittsburgh: Remarked in reply to preceding speaker, Dr. Chas. B. Ball, who stated that there were 13,000 privy vaults in Pittsburgh, that Pittsburgh at present is fast abolishing them, having abolished nearly 7,000 in two years and that at this rate there will soon be none left.

Dr. Helen Mac Murchy, Toronto: Remarked in reply to a statement by the Chairman that in cities and towns in Great Britain the provision of proper sanitary conveniences is almost universal.

SECTION ON MIDWIFERY

Friday, November 17, 10.30 A. M.

CHAIRMAN
MARY SHERWOOD, M. D., Baltimore

SECRETARY
IRA S. WILE, M. D., New York City

ASSISTANT SECRETARY
CAROLYN C. VAN BLARCOM, R. N., New York City

STATEMENT BY THE CHAIRMAN

In studying and classifying the causes of infant mortality we find a considerable number of deaths attributable to unskilled care on the part of the physician or midwife in attendance upon the mother in her confinement. Approximately one-half of the cases of childbirth in the United States are attended by midwives, the remainder by physicians.

The program of the section on midwifery has been arranged with the object of studying the qualifications of these two classes of practitioners for their work. Results of investigations of midwifery conditions in cities and rural communities are also presented.

The facts summarized in these studies are appalling. It is shown that few medical schools are equipped to teach obstetrics, and that, consequently, few physicians are qualified to practice obstetrics. Statistics of the practice of midwives show equally deplorable conditions. Ignorant and untrained women are permitted to attend confinement cases unlicensed and unsupervised.

It is hoped that many communities will be stimulated by these discussions to study their local midwifery conditions and that eventually America will face and solve its midwife problem.

SUMMARY AND RESOLUTIONS

At the general session, Saturday, November 18th, 1911, Dr. Sherwood summarized the findings of the Section as follows:—

Based upon the results of Dr. Williams' study of the present methods of teaching obstetrics in the United States, the follow-

ing resolution, introduced by Dr. J. W. Schereschewsky, of Washington, was adopted:—

Be it *Resolved*, That it is the sense of the Section on Midwifery:

(I). That the teaching of obstetrics in the medical schools of the United States is grossly inadequate. That no time should be lost in according to the teaching of obstetrics an importance equal at least to that given to medicine and surgery.

The papers relating to the midwife and her work discussed this great problem from various points of view. It was felt that further study should be undertaken before recommending a policy as to the abolition or the recognition and supervision of the midwife.

Public opinion should be based upon intelligent knowledge of local conditions. Very few communities have faced their own midwife problem and obtained exact facts as to the number and the qualifications of its midwives.

It was therefore *Resolved:*

(II). That the study of local midwifery conditions is urged as a means of collecting facts with which to direct public opinion in regard to this important subject.

A practical suggestion made in each paper presented and discussed gave rise to the following resolution:—

(III). That the extension of out-door dispensary and hospital obstetric facilities is advocated as one of the most efficient measures for obviating this source of maternal sickness and death and a high rate of infant mortality.

The vote being called for, these resolutions were adopted unanimously by the Association.

(See also Discussion on Midwifery, pages 282-285, 341-350, Section on Nursing and Social Work.)

THE MIDWIFE PROBLEM AND MEDICAL EDUCATION IN THE UNITED STATES

By J. WHITRIDGE WILLIAMS, Professor of Obstetrics, Johns Hopkins University

When requested by the Chairman of the Committee on Midwifery of the Association for the Study and Prevention of Infantile Mortality to prepare a paper upon the midwife problem, I felt that important information upon the subject might be elicited by interrogating the teachers of obstetrics throughout the country. Accordingly, I prepared a questionaire, containing some fifty questions, which is appended, and which was sent to the professors in the 120 medical schools giving a full four-year course. Forty-three professors, representing schools in every section of the country, were good enough to reply.

As some of the queries were decidedly personal in character, I promised not to mention the names of those replying, nor the schools with which they are connected; but at the same time I stated that I should feel free to use whatever information might be supplied. It is with great pleasure that I take this opportunity to thank those who replied for their courtesy and frankness and at the same time to express the hope that their co-operation has not been in vain; as I feel that it will bear fruit by arousing general interest not only in the midwife problem, but also in the much broader question of medical education, by showing that we have as yet failed to train practitioners competent to meet the emergencies of obstetrical practice.

While the responses were not as general as might be desired, they are nevertheless sufficiently numerous to give a fair idea of the conditions existing throughout the country. Thirty-one replies came from 61 schools which are designated as "acceptable" by the Council on Education of the American Medical Association as compared with 11 from the 59 non-acceptable schools, not including one from Canada.

The 43 schools replying may be classified as follows:

Eleven of the twenty-three schools demanding two or more years of college work for admission.

Four of the twelve schools demanding one year of college work.

Sixteen of the other twenty-six acceptable schools requiring four years of high school work.
Eleven of the fifty-nine non-acceptable schools, and
One of the acceptable Canadian schools.

The one favorable general impression, which I obtained from the entire series, is that the 43 professors of obstetrics making them constitute a body of unusually frank and truthful men; as otherwise they would scarcely admit the existence of such a condition of affairs as their replies seem to indicate. For many years I have regarded the general attitude toward obstetrical teaching as a very dark spot in our system of medical education, and the majority of the replies to my questionaire indicate that my pessimism was more than justified. Briefly stated, they indicate (a) that many professors are inadequately prepared for their duties and have but little conception of the obligations of a professorship; (b) that a considerable proportion are not competent to cope with all obsterical emergencies; (c) that nearly all complain that their teaching and hospital equipment is inadequate for the proper training of students; and (d) most serious of all, that a large proportion admit that the average practitioner is not prepared for the practice of obstetrics, and does his patients as much harm, if not more, than the much-maligned midwife.

If such conclusions are correct, I feel that those of us, who are interested in safeguarding the lives of mothers and their newly-born children, can accomplish our purpose more speedily and efficiently by giving publicity to the facts, and by insisting upon the institution of radical reforms in the teaching of obstetrics in our medical schools and upon the improvement of medical practice, rather than by attempting to train efficient and trustworthy midwives. The former can be accomplished in time, while my knowledge of affairs in Europe makes me skeptical as to the possibility of the latter.

In the first part of this report, I shall attempt to set forth the condition of affairs as revealed by my questionaire; while in the second part, I shall venture to indicate some of the reforms necessary to place obstetrical teaching upon a proper basis, and incidentally touch upon certain features of the midwife problem, in an attempt to indicate how the public may obtain better obstetrical treatment. With this in mind, I shall take up separately each question of the questionaire, and after giving the gist of the replies as objectively as possible, I shall make whatever critical remarks I may consider indicated. It is scarcely necessary for me to state that I have endeavored

to reproduce faithfully the statements of my colaborators, for which I am not responsible; while my own views, and possibly my prejudices, will appear in the latter part of the report.

QUESTIONS I TO IV

Name, ——; Professor of Obstetrics —— in Medical School; Duration of professorship, ——; Graduated from ——; Date, ——.

These need not be considered, as they are purely introductory and were asked only for purposes of orientation .

QUESTION V AND VI

Are you engaged in general practice, or do you limit your work to gynecology and obstetrics, or to obstetrics alone?

Seventeen professors replied that they were in general practice in addition to their college duties; 21 that they limited their work to obstetrics and gynecology, and 5 others solely to obstetrics. Accordingly, considerably more than one-third of the professors, including 4 in the so-called high standard schools, are not specialists in any sense, and owing to the obligations of a large general practice have not sufficient leisure to become thoroughly versed in all of the problems of obstetrics and must necessarily take their professorial duties lightly. Moreover, five professors, including 3 in high standard schools, limit their work exclusively to obstetrics; and as several of them admit that they are not competent to perform major operations, it is apparent they cannot be ideal teachers.

From my own point of view, it is only from those who combine obstetrics with gynecology that thoroughly well equipped teachers can be recruited; as I consider it essential that the obstetrician be a competent surgical operator, and the most feasible method for him to obtain the necessary technical experience is by means of gynecological work. On the other hand, it by no means follows that all who limit their work in this manner will be ideal teachers, as it is probable that a certain proportion are poorly equipped, or regard their professorial duties as distinctly secondary in importance to the demands of private practice.

QUESTION VII

Did you serve as a hospital assistant or interne immediately following graduation?

To this question, fifteen professors, including three in high standard schools, answered in the negative, 17 replied that they had served for less than one year, and 11 for a longer period.

At first glance this appears far from satisfactory, but when it is remembered that many of the professors graduated twenty or more years ago, it is not quite so poor; as at that time the facilities for serving as an interne in a general hospital were much more limited than at present. Consequently, it merely indicates that many of our professors did not receive rigorous hospital training in their youth, but gained their practical experience almost exclusively from private practice.

QUESTION VIII

Why did you take up obstetrics?

The 41 answers to this question may be divided into four categories. Eight professors deliberately chose obstetrics as their life work and endeavored to obtain as ideal a training for its pursuit as possible. Thirteen stated that they were always interested in the subject, and 9 that they were very much interested before taking it up seriously. On the other hand, 11 stated that chance alone led them to teach this branch of medicine. Several accepted the professorship, merely because it was offered to them but had no special training or liking for it, while others succeeded to it after having taught various other branches with more or less success.

Similar conditions, I presume, obtain in most of our schools in all branches of medicine; as the incumbency of a professorial chair is not usually regarded as a serious matter, and is desirable only as a means of introduction to lucrative private practice. Of course, it is possible that a considerable number of those accepting professorships in this spirit may do competent work, but at the same time it is depressing to learn that only 8 of the entire number of professors deliberately set out to prepare themselves thoroughly for their life work.

QUESTION IX

What was your preparation for teaching?

Prior to assuming their professorial duties, twenty-one, or slightly less than one-half of the entire number of professors, served for varying periods in lying-in hospitals. In eleven instances the service varied from one to five months, in five it extended over six months, while in five others it covered one or more years.

Such a confession appears highly depressing, but upon further consideration it must be admitted that it is about what might be expected in this country; as 25 of the professors graduated twenty or more years ago, when very few lying-in

hospitals were in existence, and those poorly equipped and offering but slight opportunity for clinical observation. Such conditions, however, are in marked contrast with those obtaining in Germany and France, where the first requirement for a professorial career is a long period of preparation in a well equipped lying-in hospital with abundant clinical material. At the same time, it must be noted that the preparation of a considerable number of our professors was augmented by service far varying periods in more or less well organized outpatient departments.

Even more serious than the lack of rigorous hospital training, is the appalling slight experience which many had before being appointed to professorships. The replies indicate that only 9 of the entire number had seen one thousand or more cases of labor, and 22 others considerably less, while 11 obtained their practical experience solely from an indefinite number of cases in private practice. Moreover, it is interesting to note that one professor admits that he had never seen a woman delivered before assuming his professorship, while 5 state that they had seen less than one hundred cases, and 13 others less than five hundred cases.

Thinking of becoming a professor of obstetrics with an experience of less than one hundred cases!

Excluding those whose practical knowledge was gained entirely from private practice, it seems permissible to conclude that two-thirds of the remainder upon their appointment had less experience than assistants at the present time gain during a two year service in a respectable lying-in hospital; which, from my knowledge of their attainments, is a very defective preparation for a responsible teaching position.

After considering the answers to this question, I think that it is difficult to avoid the conclusion that the majority of our professors entered upon their duties with a comparatively poor equipment from a practical point of view, while their attainments in the undelying sciences were usually extremely faulty.

QUESTION X

Have you studied abroad?

The replies show that 24 of the 43 professors have visited Europe, of whom 14, or one-third of the entire number, worked for three months or more in some well organized clinic. This is a fairly satisfactory showing, and indicates that many of our professors were not satisfied with their home training, which they attempted to supplement by further work in a well equipped European clinic.

QUESTION XI

Is a lying-in hospital connected with your school?

The answers to this question are in general very depressing, and show that six schools have no connection with a lying-in hospital. Of the 37 hospitals, 9 have accommodations for less than 100 patients per year, 15 for more than 100 but less than 250, 4 for 250 but less than 500; and 9 for 500 or more patients per year, including two schools with accommodations for over 1,000 patients. These figures indicate that most schools are very poorly equipped in this regard, as only nine have anything like adequate clinical material for the instruction of their students. Moreover, with a few exceptions, even the best of our lying-in hospitals are vastly inferior, as far as the number of patients and equipment for teaching are concerned, to the clinics in the smaller German universities.

Twenty of the 37 lying-in hospitals are owned and controlled by the school with which they are connected. Apparently, a most excellent showing; but closer examination shows that the conditions are not so ideal, as 7 of the college controlled hospitals have less than 100 deliveries per year, and only 5 out of the entire number more than 250.

In order to give an idea of the deplorable dearth of clinical material, I have tabulated the figures from ten of the smaller lying-in hospitals, including 2 connected with high standard schools, with from 25 to 125 deliveries per year. Together they have only 553 cases for the instruction of 575 students; and when it is remembered that, owing to the long summer holiday and other causes, practically one-half of the cases are lost for purposes of instruction, it is apparent that each student on an average has an opportunity to see only one woman delivered, which is manifestly inadequate. Moreover, the conditions are only slightly better, when the combined facilities of the entire 20 hospitals owned by the medical colleges are considered, as together they represent a total of 5,665 deliveries per year for 1,400 students requiring clinical instruction, which means an average of only four cases per student.

Naturally, such calculations do not accurately represent the actual facts, as they are based upon the supposition that only two students see and examine each woman in labor. Moreover, in certain schools the number of cases available is considerably less than the average, while in others it is greater. The actual figures show that in 25 schools each student sees 3 cases or less, in 9 schools 4 to 5 cases, and, in 8 others 5 or more cases; while in some of the smaller hospitals this is pos-

sible only by having four to six students examine each patient, and thereby subjecting her to unjustifiable risk of infection. Accordingly it would appear that in only 8 of the medical schools under consideration do the students have an opportunity to witness anything like a satisfactory number of deliveries under appropriate clinical conditions. On the other hand, ambitious students may see a greater number of cases, provided they are willing to work in their own schools during the summer months, or can afford to take a course in one of the large institutions, such as the New York Lying-in Hospital, which is not connected with a medical school.

No one can read these figures without admitting that the situation is deplorable, and that the vast majority of our schools are not prepared to give the proper clinical instruction to anything like the present number of students. This is particularly true of the small lying-in hospitals, which are still further handicapped by the fact that the paucity of material renders it probable that years may elapse before certain complications of pregnancy and labor will be observed, and consequently, practical instruction along such lines will be lacking, to the great detriment of the student. Moreover, such restriction in material greatly hampers the development of the professor and his assistants by the absence of suggestive problems, and his inability to subject his own ideas to the test of experience.

Turning from the actual number of cases available for clinical instruction, to the opportunities afforded for training assistants, who should be the professors of the future, it is difficult to speak too strongly. In the 37 lying-in hospitals under consideration, it is apparent that this function is in great part neglected, as is shown by the fact that the period of service is usually too short to permit of training well rounded men. Thus, in 13 institutions the assistants serve for periods varying from one to six months; in 4 for six months or more but less than one year; in 15 for one year; and in only 5 for a longer period, including two in which the service extends over four years. Consequently, it may be said that proper training can probably be afforded only in the 5 schools in the latter group, as in my experience assistants at the end of the first year are just beginning to be useful and are able to make a correct diagnosis only in the simpler cases, so that even with a comparatively large material, their experience is relatively so slight that they are not prepared to cope with serious emergencies even when recognized.

Notwithstanding the general lack of clinical material and the imperfect provision for training suitable assistants, practically

all of the schools reply that they are well equipped for the performance of major operations. This is probably correct, if it merely indicates the possession of suitable operating tables and instruments; but when it is remembered that less than one-half of the assistants have received no gynecological training, it is inconceivable that they are properly prepared to assist in such operations. In my own service, in which the assistants serve for a number of years, I find that the number of major operations is so small that it is difficult to maintain the technique and team work essential to their satisfactory performance, and consequently, I encourage my men after completing their obstetrical work to serve as long as possible in an active gynecological or surgical service.

QUESTION XII

Do you maintain an outdoor obstetrical service?

The following answers were received:

5, none;
6, small services without data as to number of patients;
16, with less than 250 deliveries;
6, with between 250 and 500 deliveries;
5, with between 500 and 1,000 deliveries; and
5, with 1,000 or more deliveries per year.

At first glance these figures appear much more satisfactory than those for lying-in hospitals, as they show that ten of the schools have a fair material. At the same time, I have learned from my own experience that the value of such a department for teaching purposes is dependent upon so many factors that the mere number of women cared for gives no idea as to its adequacy. In order to be efficient for teaching, an out-patient service must be held in rigid discipline, be organized as an integral part of the regular obstetrical service, and conducted through the lying-in hospital. Moreover, the students should not be sent to the homes of the patients alone, but should always be accompanied by an assistant to demonstrate the case, as well as by a trained nurse to prepare the patient properly and to render her surroundings as sanitary as possible. Under such conditions, out-patient material may be utilized for teaching purposes almost as satisfactorily as ward patients. On the other hand, if the organization and discipline is lax, and the student is not accompanied by a doctor and nurse, it has but little value, as attention is not directed to the necessary points, and the student is apt to fall into slipshod methods.

Upon analyzing the detailed replies in this regard, it is found that 20 of the 38 services send assistants to all cases, but that only 14 send nurses, so that considerably less than one-half are organized upon a proper basis. Further analysis also reveals the interesting fact that the ten larger services are as a rule much better organized than the 28 smaller, as the replies indicate that assistants are sent to all cases by all but one of the former, as compared with 11 of the latter; while nurses are utilized in 5 of the large and 9 of the small services.

In order to give an approximate idea of the total amount of clinical material available, I have calculated the total number of ward and out-patient cases in the various schools, upon the supposition that two students see and examine each indoor, and one student each out-door patient. The following table shows a progressive decrease in the number of cases in each of the four groups, according as the schools require for entrance two years, or one year of college work, or merely a high school education or less:

I,	10	cases	to	each	student,	with	extremes	of	2	and	21	cases
II,	7	"	"	"	"	"	"	"	3	"	10	"
III,	6	"	"	"	"	"	"	"	1	"	27	"
IV,	3	"	"	"	"	"	"	"	0	"	12	"

At the same time, it must be admitted that the figure for the first group is considerably too high, which is due to the fact that one of the schools in this category has an immense hospital and out-door service.

QUESTION XIII

What are your relations with the gynecological service both in the medical school and the hospital?

Answers obtained from 42 schools show that in 24 there is no co-operation, in 5 cordial co-operation, while in 13 the two departments are more or less closely united. In the last category the chairs of obstetrics and gynecology are united in 8 schools, in 2 the chairs are separate but are held by the same incumbent; while in 3 the professor has a joint hospital service, but teaches only obstetrics.

From the standpoint of training students and assistants, such a lack of co-operation is greatly to be deplored, more particularly as it prevents the development of broad-minded professors, who are able to cope with all complications arising from the female generative tract. In hospitals in which there is no co-operation between the two departments, the obstetrician is looked down upon by the gynecologist, and is

usually afforded markedly inferior facilities for his work. From my own experience, both in this country and abroad I am convinced that it is essential that the obstetrician be a competent operator; and as the number of radical operations in obstetrics is comparatively limited, the most natural method of obtaining the desired facility is by means of gynecological surgery. I hold that one may be a fair gynecologist with only an elementary knowledge of obstetrics, but that no one can be a competent obstetrician without being at the same time a trained gynecologist. For these reasons, I consider from the standpoint of teaching that those schools will possess a considerable advantage in which the two chairs are fused. Further development along these lines is imperative if obstetrics is to occupy the position it deserves, and with this in view every effort should be directed toward the founding and endowment of women's clinics in every true university medical school, more or less along the same lines as in Germany. That such a fusion is necessary will be incidentally demonstrated by the answers to the next two questions.

QUESTION XIV

Are you competent to operate upon any complications arising from the female generative tract?

To this 35 professors answered yes, and 8 no; and these figures, I imagine, are much more favorable than the actual facts. Several professors frankly admit that they are not prepared to perform Caesarean section.

Consider that such a conditions of affairs means that the professor is merely a man midwife, who is unable to carry a complicated case of labor to its legitimate conclusion! Or imagine the effect upon a patient, who places herself in the hands of a professor of obstetrics in a respectable medical school, when she is told that he can conduct the case satisfactorily if it is ended by the unaided efforts of nature, or merely requires some slight interference, but in case radical interference is demanded he will be obliged to refer her to a gynecologist or surgeon. Think of the impression such an admission must make upon the student, who cannot be blamed for believing that obstetrics is a pursuit unworthy of broadly educated men, but is suitable only for midwives.

This is not the place to go into the details of this question, but I have no hesitation in asserting that a professor of obstetrics, who is not prepared to perform a Caesarean section or other radical operations, is not competent to undertake the care of a case of labor complicated by pelvic contraction, and is not fitted to teach modern obstetrics.

QUESTION XV

Can you care for a case of ruptured uterus, advanced extra uterine pregnancy or excision of the pelvic veins, as well as your gynecological confrere?

To this 32 respondents answered yes, and 11 no. If one-fourth of the professors, including three in the high class schools, make such an admission, it is safe to assume that a much larger number should be included in the same category. Moreover, when it is recalled that 17 professors are engaged in general practice, and that 5 more limit their attention solely to obstetrics, and accordingly have but little opportunity to perfect themselves in operative technique, it is safe to assume that least one-half of those replying to the questionaire are unable to cope satisfactorily with these legitimate obstetrical complications. Such being the case, can any one be surprised that obstetrics is looked down upon by the other departments of the medical school and is not regarded seriously by most students and practitioners.

QUESTION XVI

Do you consider your hospital and teaching equipment satisfactory?

To this 14 respondents answered yes, and 29 unhesitatingly no. In other words, the professors in two-thirds of the schools frankly admit that the conditions are highly unsatisfactory. If this were all it would be an appalling admission; but unfortunately, the actual conditions are much worse, and self-delusion or ignorance is the only explanation for many of the affirmative answers.

I think that I am fairly conversant with the existing conditions, and as far as I know there is only one medical school in the country, which is properly equipped for teaching obstetrics and gynecology along the lines of a well conducted German Woman's Clinic. And I regret to say that it is not at the Johns Hopkins Hospital, whose lying-in department is very inferior and far below the standard maintained by the other departments of that institution. At present, plans are being perfected in one of the Eastern cities for the construction of an almost ideal woman's clinic, but unfortunately, it will be merely affiliated with and not controlled by the medical school. Three other fair sized and well equipped lying-in hospitals are also affiliated with medical schools, but are equipped only for practical clinical work and not for investigation.

On the other hand, in my opinion the favorable verdict concerning the equipment of the other 9 schools is unjustifiable,

and the fact that it is designated as satisfactory shows to what a slight extent many professors comprehend the obligations of a teaching position. A few examples will, I think, make this contention clear. One so called satisfactory clinic has only 35 cases a year for the instruction of 40 students. In three others the period of service for the assistants is respectively, 1½, 3 and 6 months. Another lying-in hospital has no free beds, and the clinical instruction given in the school is entirely in a large out-patient service. In the sixth "satisfactory" school the professor admits his inability to do a Caesarean section; in still another the director knows so little of his department that he is unable to give the number of beds under his control; and finally, the last in this category stands low in the list of non-acceptable schools, and is notorious for its poor equipment and the frequent failure of its students before State boards throughout the country.

QUESTION XVII

What is necessary to make your equipment satisfactory?

Leaving out of consideration the 14 "satisfactory" schools just mentioned, the answers reveal an extremely depressing condition of affairs. Upon this occasion it would lead us too far afield to enter into details, but I imagine that the mere enumeration under the following heading, of the main needs mentioned will suffice to prove that the conditions are far from ideal:

A. Need everything.
B. Need a lying-in ward.
C. Need a lying-in-ward controlled by the school.
D. Need accommodations for more patients.
E. Need more intelligent assistants who serve for longer periods.
F. Need more money for current expenses or endowment.
G. Need better prepared students.

On the other hand, no one mentioned the need of broad-minded, scientifically trained teachers, nor of properly equipped laboratories for investigative work.

QUESTION XVIII

Have you ever trained a man whom you felt was competent on leaving you to become professor of obstetrics in a first-class medical school?

Twenty-six respondents answered in the negative, while one naively replied "that he had never been called upon to do so." On the other hand, 17 professors answered in the affirmative, and several stated that they had trained a number

of men of professorial calibre. As so imposing an output was somewhat of a surprise to me, I analyzed the replies with some interest.

If the figures are correct, it is pertinent to enquire what has become of the young professors! I do not where they are located, and, as there are not 17 first-class medical schools in the country, the discrepancy is explicable only upon the supposition that many died in early youth, or that the respondents overestimated their attainments. Furthermore, it is interesting to inquire where they received their training and who were their teachers. As has already been indicated there are only five lying-in hospitals which keep their assistants for longer than one year; consequently, as it is hardly possible to train a competent professor in a shorter time, it must follow that most of them must have received their training in these schools, which is unlikely.

Again, it may be asked, whether all of the 17 professors giving positive answers are competent to train such men. This also does not appear likely; for, although I have been a close student of medical literature for the past twenty years, I do not recall having seen an article, good, bad or indifferent from five of them; and it is scarcely probable that totally unproductive men would be able to stimulate young men to become excellent professors. Moreover, in some instances it would have been impossible for them to have obtained their knowledge from the obstetrical clinic of their own school, as less than 100 patients are delivered per year in four of the hospitals concerned, while one has only 25 patients. Furthermore, one is connected with a most notorious non-acceptable school, and several more to my knowledge are poorly equipped in buildings, clinical material and facilities for investigation. On the other hand, it is a pleasure to admit that a small number of the schools are doing good work in this direction, and have turned out several men of really first-rate professorial calibre.

The replies in general are very discouraging, as they indicate, in the first place, that it is usually impossible for ambitious young men to obtain in the schools from which they graduate anything like sufficient opportunity to equip themselves for a teaching career; and in the second place they force us to conclude that many professors take their duties very lightly, and have but little conception of the obligations connected with a properly conducted professorship. If this is the case, is it not absurd to expect such men to inspire students with a proper conception of obstetrics, or to deserve and maintain the respect of members of their own faculty, or of the profession in the neighborhood in which they live.

QUESTION XIX

Do you consider that the ordinary graduate from your school is competent to practice obstetrics?

Eleven teachers, or one-quarter of the entire number, promptly answered no; while the remainder replied in the affirmative, although in many instances in a somewhat qualified manner. Thus, one replied "Well, yes, in a way; that is some of them." It appears to me that the affirmative answers, as a rule, are more positive the poorer the school and the smaller its clinical material. That this it not an exaggeration, is shown by the fact that affirmative replies came from several of the schools without lying-in hospitals, as well as from 2 others with only 25 cases per year available for the instruction of 50 students.

At the same time, most of the teachers qualify their affirmative answers by stating that their graduates are competent to conduct normal cases, while several others designate them as fairly efficient man-midwives. Moreover, most of them admit that the graduates are not competent to conduct operative labors, while several state that they deteriorate rapidly in technique after leaving the medical school.

After eighteen years experience in teaching what is probably the best body of medical students ever collected in this country—the student body at the Johns Hopkins Medical School for the year 1911-1912, being made up of graduates from one hundred and twenty-eight colleges and universities in this country and Europe—I would unhesitatingly state that my own students are absolutely unfit upon graduation to practice obstetrics in its broad sense, and are scarcely prepared to handle the ordinary normal cases.

In general, it may be said that in the medical schools in this country the facilities for teaching obstetrics are far less than those afforded in medicine and surgery; while the teachers as a rule are not comparable to those in the German universities. No student would think of attempting to practice surgery immediately upon leaving the medical school; for he would know that long years of apprenticeship are necessary in order to obtain the requisite judgment and manual training, yet young graduates who have seen only 5 or 6 normal deliveries, and often less, do not hesitate to practice obstetrics, and when occasion arises to attempt the most serious operations. At the same time, I do not want to imply that the American graduate even with his faulty training is very much worse

than in other countries, as I have seen in Europe some of the most horrible obstetrical tragedies in the hands of practising physicians of long standing,

QUESTION XX

What proportion of labor cases in your city are attended by midwives?

The replies indicate great variations in different localities, Midwives are almost unknown in Montreal, and I am informed that only 25 practice in Boston. On the other hand, in most of our large cities, including New York, Chicago, St. Louis, and Atlanta, they conduct from 40 to 60 per cent. of all labor cases.

In regard to their licensure, eight teachers pleaded ignorance of conditions, while 25 stated that they were licensed and 10 that they were not.

Concerning their necessity, there was a still wider divergence of opinion. Twelve professors replied that they did not possess sufficient data to justify an expression of opinion; while of the 31 giving positive answers, 15 stated that they were necessary, and 16 not.

After analysis of the replies to this question, it is apparent that midwives attend many cases in most of our large cities, but their employment is dependent upon local conditions rather than general necessity; as is shown by the replies from Boston and Montreal. In most localities some attempt is made to control them in a feeble way, but nowhere effectively; while the teachers of obstetrics throughout the country are about equally divided as to their necessity.

QUESTION XXI

Do you believe that more women die from puerperal infection and eclampsia in the practice of midwives or of general practitioners?

To this 8 teachers replied that they did not possess sufficient data upon which to base an opinion; while of the 35 who answered, 17 stated physicians and 13 midwives, while 5 held that their death rate is about equal.

Accordingly, it appears that the majority of teachers in this country consider that general practitioners lose as many and possibly more women from puerperal infection than do midwives. This is an appalling conclusion. as it is generally believed that infection is the main cause of preventable deaths in the practice of the latter. It may, however, be mitigated to some extent by admitting that the more serious

cases of infection occurring in the hands of midwives are eventually seen by physicians, so that their death is not credited to the former; but even after making such allowances, it is impossible to escape the conclusion that such a condition of affairs is a railing indictment of the average general practitioner. and of our methods of obstetrical instruction.

QUESTION XXII

Do as many women die as a result of ignorance, or ill-judged and improperly performed operations in the hands of general practitioners, as from puerperal infection in the hands of midwives?

Eight teachers state that they are not prepared to answer the question; while of the 35 who do so, 26 answer against the general practitioner. and only 6 against the midwives, while 3 hold that both are equally bad. Moreover, many direct attention to the unnecessary death of large numbers of children resulting from improper operating, and the failures to recognize the existence of a contracted pelvis. As the argument usually advanced against the midwife is the frequency with which infection occurs in her practice, such a conclusion comes as a surprising revelation.

What a showing! The generally accepted motto for the guidance of the physician is "primum non nocere;" and yet more than three-quarters of the professors of obstetrics in all parts of the country, in reply to my questionaire, state that incompetent doctors kill more women each year by improperly performed operations than the ignorant midwife does by neglect of aseptic precautions.

If it appears necessary to reform anything. here is the opportunity. Why bother about the relatively innocuous midwife. when the ignorant doctor causes many more absolutely unnecessary deaths. From the nature of things, it is impossible to do away with the doctor, but he may be educated in time; while the midwife can be abolished if necessary. Consequently, we should direct our efforts to reforming the existing practitioner, and to so changing our methods of training students as to make the doctor of the future reasonably competent.

QUESTION XXIII

How do you consider that the midwife problem can best be solved?

Thirty-four answers to this question give the following result: Eighteen advocate the regulation and education, and 14 the abolition of midwives, while one advocated that the question be left in statu quo, and another that the only solution lay in better trained doctors.

Upon analyzing the replies several interesting facts were elicited. Thus, a thoroughly competent professor in one of the large cities, in which more than one-half of all labors are conducted by midwives, states although the smaller portion of the obstetrical work is in the hands of phyiscians that they, nevertheless, lose from infection many more women than do the midwives. Again, one of the respondents from New York City states that owing to the extension of lying-in charities, midwives now attend many less women than formerly, notwithstanding the rapid increase in the population of the city. A similar statement comes from Cincinnati, where without stringent regulation, the number of women attended by midwives has decreased 70 per cent. in 1880 to 30 per cent. in 1909, thus tending to indicate that prolonged residence in this country gradually overcomes the prejudices of our foreign-born population against the employment of physicians. Moreover, the replies show that less than 25 midwives are registered in the city of Boston and that very few practice in Montreal.

Those who advocate regulation and education vary greatly in their ideas, some advocating mere general regulation, while others demand extensive education in properly equipped hospitals, as in Germany and Italy, with constant supervision by the Board of Health which should have power to revoke licenses whenever necessary.

Equally divergent arguments are advanced by those favoring the abolition of midwives. One group regards as hopeless any attempt to train them efficiently; while another holds that they may be entirely done away with by educating the laity, by extending lying-in charities, and by supplying better doctors and cheaper nurses; while my own views will be expressed in the second part of the paper.

QUESTION XXIV

Can you suggest any practicable method of improving the general standard of practical obstetrics outside of hospitals?

The mere fact that all but two of those answering my questionaire make definite suggestions in this regard, offers further proof of the deplorable condition of obstetrical education and practice, and indicates the urgent need for reform.

It would lead too far to consider all of the suggestions in detail, and I shall content myself by enumerating the main ones, which are so arranged as to indicate the order of frequency in which they were made:

1. Better teaching and more abundant lying-in hospital accommodations.
2. The profession and laity should be taught that obstetrics is surgery, and that its major operations are as serious as laparotomies.
3. Education of the laity concerning existing conditions and insistence that the proper place for major obstetrics is a well-conducted hospital.
4. Regulation of obstetrical practice by the State Boards of Health, which should grant a provisional license to practitioners, revocable upon demonstration of incompetency or neglect.
5. Better education of practitioners. A number of respondents do not believe that the present generation can be materially improved.
6. Teaching both doctors and the laity that the ordinary practitioner should attend only normal cases, and should refer the abnormal ones to specially trained men connected with well-equipped hospitals.
7. Better pay for practitioners doing general obstetrical work, as it is held that it is useless to expect expert care for compensation which is generally regarded as adequate.
8. The collection and general dissemination of accurate statistics concerning the mortality of child-birth, as well as the injuries and illnes which result from improper care.
9. Elevation of the importance of obstetrics in the eyes of practitioners, medical students and the laity.
10. Marked extension of obstetrical charities and well organized lying-in hospitals.
11. The gradual evolution of a better class of practitioners. A slow process, as very little improvement can be expected within the present generation.
12. Greater development of visiting nurses for those of moderate means, and the education of trained helpers to carry out their directions.
13. Differentiation of students into two classes, one of which should be educated as a man-midwife, and the other as a broadly-trained obstetrician.

I am convinced that no fair-minded person who is interested in the welfare of the women and children of our country, or in the problems of medical education, can read the foregoing analysis without feelings of profound depression, or without admitting that we are facing a condition urgently in need of reform.

The replies clearly demonstrate that most of the medical schools included in this report are inadequately equipped for their work. and are each year turning loose upon the community hundreds of young men who are not properly prepared for the practice of obstetrics, and who cause the unnecessary death of thousands of women and young infants, not to speak of a much larger number who are more or less permanently injured by improper treatment or neglect. Moreover, the spontaneous admission by more than three-fourths of the respondents that medical men are responsible for more deaths in child-birth than the much-maligned and ignorant midwife, forces

us to acknowledge that improvement in the status of the latter alone will not materially aid in solving the problem.

A priori, the replies seem to indicate that women in labor are safer in the hands of admittedly ignorant midwives than in those of poorly educated medical men. Such a conclusion, however, is contrary to reason, as it would postulate the restriction of obstetrical practice to the former, and the abolition of medical practitioners, which would be a manifest absurdity.

The discrepancy is in part explicable by the fact that, with a few exceptions, midwives recognize their inability to cope with obstetrical emergencies and therefore limit their activities to the care of apparently normal cases of labor; with the result that their patients die only from infection or from conditions following procrastination or neglect in soliciting medical aid. On the other hand, the average practitioner does not recognize his own limitations, but in his ignorance feels that he is as competent to cope with abnormal conditions as his efficiently trained confrere, whose aid he solicits only after futile attempts at delivery have demonstrated his inability to complete the task. Consequently, the specialist as a rule does not see the patient until her condition has become deplorable.

This is not the place to enlarge upon the tragedies, or "near-tragedies," of consulting obstetrical practice, and the matter is mentioned merely in explanation of the apparent discrepancy between the results obtained by midwives and medical men. Moreover, I do not wish to convey the impression that all practitioners are included in this condemnation, as I am glad to say that I know many, and there are many thousands of others in the country, who, from natural ability or from extensive experience and study, are thoroughly accomplished in the management of all but the most complicated cases. Furthermore, I desire to go on record as stating that the average practitioner is not entirely to blame for his ignorance in obstetrical matters, as he is usually as benevolent, as intelligent and as anxious to do good work as any one else. The fault lies primarily in poor medical schools, in the low ideals maintained by inadequately trained professors, and in the ignorance of the long-suffering general public.

What is the remedy for these conditions? I shall enumerate some of them, but their mere number indicates how serious the problem is, and how impossible it will be to consider them all adequately at the present time.

Some of the necessary reforms are,

a. Better and properly equipped medical schools.
b. Higher requirements for the admission of students to medical schools.
c. Scientifically trained professors of obstetrics with high ideals.
d. General elevation of the standards of obstetrics.
e. Education of medical practitioners.
f. Education of the general public.
g. Development of lying-in charities.
h. Cheaper nurses.
i. Possibly the training of midwives.

A. Medical Schools: Mr. Abraham Flexner's able report upon the medical schools of this country prepared under the auspices of the Carnegie Foundation for the Advancement of Teaching, has clearly shown how poor most of our schools are and what drastic methods must be applied in order to reform them. I thoroughly agree with the gist of his report, and consider that our ultimate aim should be the gradual closing of most of the existing schools and their replacement by not more than thirty excellent schools scattered throughout the country. These should form component parts of strong universities already in existence, and be administered as such. This will require a great increase in endowment to make possible the employment of professors with high ideals concerning the training of students and the advancement of medical research, not to mention the cost of maintaining thoroughly well-equipped clinical institutes and laboratories.

As far as obstetrics is concerned, it is apparent that the needs are manifold. In the first place, well-equipped lying-in hospitals with sufficient clinical material are urgently demanded. I feel that students cannot be properly trained for the mere management of normal cases, without having witnessed at least 20 normal deliveries, being thoroughly trained in the methods of diagnosis, and having fair opportunity for bed-side instruction in the more usual complications. This is not possible for a class of 50 students, unless the department has under its control at least 500 indoor and an equal number of outdoor patients.

It is highly desirable that the lying-in hospital be owned by the university, or if not, that it should be in the closest possible affiliation with it, with the power of appointment vested in the proper university board. At the present time, I know of only one medical school in the country which is in any way ideally provided with the clinical material necessary for proper teaching. Within a year another very satisfactory

institution will be opened, which, I regret to say, is not at the Johns Hopkins, where the conditions are highly unsatisfactory; the department is housed in quarters which were not primarily intended for the purpose, which only afford make-shift accommodations for about one-half of the number of patients necessary for the proper instruction of our students.

The lying-in hospital should be regarded not only as a place where poor women are properly cared for during and after labor, and properly utilized for the instruction of students; but it has an equally important function in the training of assistants, from whom the specialists and the professors of the future should be recruited. In order to make this effective, long term services are absolutely essential, during which the assistants should not only be trained to be competent practical obstetricians, but should aim to become broadly educated men, who regard obstetrics as an engrossing scientific study. In order to accomplish this, the head of the department must be a man of high scientific ideals, who is able to see that his men acquire proper training in the underlying sciences and have abundant laboratory facilities.

As indicated in the first part of the paper, practical obstetrics must be regarded as a branch of surgery, and the only feasible method by which the assistants can obtain the necessary facility in surgical methods and technique is by the closest co-operation with the gynecological department, or preferably by the union of the two departments.

B. Before any thorough-going reform can be instituted in medical practice, it is essential that the general standard of the men pursuing it be elevated. The last few years have seen a marked improvement in this respect, and thanks to the efforts of the Council on Medical Education of the American Medical Association and other agencies, the time is fast approaching when all of the better class medical schools will require that applicants for admission be fairly well educated men, with a satisfactory training in the sciences upon which medicine is based. Then it will be possible for idealistic teachers to impress the students that medicine is not a mere money making pursuit, but that its real reward comes from the consciousness of having fulfilled one's various obligations in the best possible manner.

C. Professors: Radical reform in the type of professors is quite as important as the erection and proper equipment of commodious lying-in clinics.

With very few exceptions, most professors feel that they satisfactorily fulfil their professorial obligations by a few

hours teaching each week and by very general supervision over the hospital under their charge, the balance of their time being engrossed by the cares of a large private practice. Indeed, I think it no exaggeration to state that such posts are usually desired for the possibility they afford to build up a lucrative practice, rather than for the opportunity of training young men or advancing knowledge. Moreover, it should be remembered that at present 40 per cent. of our professors are engaged in general medical practice, and are even more hampered than their colleagues, who limit their work to gynecology and obstetrics, or to the latter alone. In addition, others admit that they took up obstetrics merely because the chance offered, and usually with the hope that it could sooner or later be relinquished for gynecology, with its easier work and greater financial rewards.

It is impossible to study our native obstetrical literature without feelings of profound depression, and without recognizing that scarcely an important contribution has been made by our American writers. Moreover, the vast majority of journal articles are palpably written for advertising purposes, or are simply ephemeral, technical or casuistical contributions or rehashings of fundamental work done abroad. If this is the condition of affairs, is there any wonder that such professors, even with the best will in the world, fail to imbue their students with enthusiasm or their colleagues with proper respect for the subject?

I do not, however, wish to be understood as laying the entire blame upon the teachers, as they are only partly responsible for the present conditions. The chief fault lies in our system of medical education, and the deplorable lack of idealism in most branches of clinical teaching. The past twenty years have witnessed a revolution in the teaching of underlying medical sciences; so that at present in all respectable schools, instead of practitioners, giving up a fraction of their time to teach physiology, anatomy, etc., we have well trained specialists, who devote their entire energies to the obligations of their professorship, but who, as a rule, are miserably paid, and more or less looked down upon by their prosperous clinical colleagues.

Leaven of this kind has as yet worked but slightly upon the clinical teachers, and consequently most professorships are held by men, who gauge success by financial standards and desire to be regarded as successful practitioners or consultants, rather than as true professors of medicine.

What is needed for the proper teaching and advancement of obstetrics is broadly trained scientific men, who are not only

thoroughly versed in its technical side, but who are well trained in the sciences underlying it, and are competent to conduct and direct research work and to stimulate their students. Such men should be paid salaries sufficient to permit them to give their entire time, or at least a specified major portion of it, to their professorial duties, and should regard the care of their hospital patients, teaching and investigation as their life work, and be willing to forego some of the luxuries which might come from a lucrative practice.

Men of this type would not be content to be mere man-midwives, but would demand that their sphere of activity should include everything connected with the normal functions and pathological aberations of the female generative tract. In other words, obstetrics and gynecology should be combined into a single well equipped department, somewhat as in the Women's Clinics connected with the German universities. Such institutions should be equipped with suitable laboratories and every reasonable facility for investigative work, so that the problems afflicting womankind could be studied with some hope of success.

Moreover, effective work can be carried on only by the aid of properly trained assistants, who should not be short term internes, but earnest men who expect to devote years preparing themselves in all phases of their specialty, and who, upon completion of their terms of service, look forward to professorial careers, and the management of well-organized clinics. Naturally, only a small number of assistants could expect to reach the goal, as the majority would go into practice after a few years experience, but those who persisted would be able to hold the torch aloft, and to stimulate oncoming students and assistants to higher ideals and better work.

As institutions and professors of this character are very expensive, they can scarcely be expected in proprietary or pseudo-university schools, but they should represent the ideal toward which all university schools should strive. If the great universities expect to engage in medical education, and only in this way can progress be made, they must realize that adequate clinical instruction is the most expensive form of education, and make preparations to raise the money to pay for it. I estimate that in a properly conducted Woman's Clinic, $20,000.00 would be the minimum annual outlay for the salaries of the professors and necessary assistants and for laboratory expenses. not to mention the cost of maintaining the requisite number of patients.

D. Elevation of Obstetrics: At the present time, Woman's Clinics and idealistic clinical professors, such as I have sketched, do not exist in this country. The former can be erected and equipped whenever funds become available, and the latter will begin to develop as soon as the universities want them. At this moment, I know several well equipped men who would be delighted to make the financial sacrifice incidental to accepting such posts were they assured of the support of their university.

A few professors of this type would do more toward elevating the standards of obstetrics than volumes of writing. They would teach students that the ideal obstetrician is not a man-midwife, but a broad-minded scientific man, with a surgical training, who is prepared to cope with most serious clinical responsibilities, and at the same time is interested in extending our field of knowledge. No longer would we hear physicians say that they cannot understand how an intelligent man can take up obstetrics, which they regard as about as serious an occupation as a terrier dog sitting before a rathole waiting for the rat to escape.

The present degraded position of this branch of medicine is due to several factors. First, that most medical faculties take a somewhat similar view, and regard it is an unfitting occupation for an energetic man; secondly, that an extensive private obstetrical practice is so arduous as to be incompatible with serious professorial and research work; and, thirdly, because most ambitious men who take it up regard it merely as a stepping stone to the less arduous and much more profitable gynecology.

If reform is to be effected, and I consider that I have clearly demonstrated its necessity. it is essential that radical changes be made, which I believe should be along the lines I have indicated. Medical faculties must be brought to realize that obstetrics is one of the fundamental branches of medical training and can be efficiently taught only by men of first-class ability. That education in this direction is necessary is shown by the fact that even in such an institution as the Johns Hopkins University, several members of the medical faculty still believe that the obstetrician need only be a man-midwife, who is content to eat the crumbs that fall from the rich man's table.

E. Education of General Practitioners: That the general practitioner is in need of obstetrical education has been clearly shown in the preceeding pages. How it can be effected in the older generation, I am not prepared to answer. On the other hand, the on-coming generation of physicians can be

educated to regard obstetrics as a serious occupation involving great responsibility, and be taught to recognize the fact that they are scarcely prepared to conduct uncomplicated cases, and that abnormal cases require the services of specially trained men. They should be taught to realize that the more difficult operations belong to major surgery, are quite as serious as most operations in abdominal surgery, and often require the greatest skill and experience. They should learn to refer such patients to well-equipped lying-in hospitals, and to regard the repeated sacrifice of foetal life as criminal.

F. Education of the Laity: The public should be taught that only the well-to-do, who can afford to employ competent obstetricians, and the very poor, who are treated free in well-equipped lying-in hospitals or out-patient departments, receive first rate attention during child-birth; while the great middle class, and particularly those at its lower end, is obliged to rely upon the services of poorly trained practitioners. It should be taught that while pregnancy and labor is normally a physiological process, it is not always so; but is liable to so many aberations and abnormalities that the pregnant woman should early place herself under the care of an intelligent physician. who may detect and cure in their early stages many complications, which. if neglected, might place her life and that of her child in serious jeopardy.

The laity should also learn that most of the ills of women, with the exception of tumors and gonorrhoea. are the result of bad obstetrics, and could have been prevented, or at least materially mitigated had they received proper attention at the time of labor or during the weeks immediately following it. Stress should also be laid upon the fact that obstetrical operations are not trifling, but are fraught with grave danger to mother and child, and that the more serious ones should be performed only by experts, preferably in well-conducted hospitals.

Every effort should be made to emphasize the great responsibility which the obstetrician must bear in the management of abnormal cases. The public must be taught that the conduct of labor complicated by a moderate degree of pelvic contraction is quite as serious as a case of appendicitis, and that its proper management requires the highest degree of judgment and skill. while eclampsia or placenta praevia are even more serious. At present, however, the average practitioner does not recognize the existence of the former until irreparable damage has been done, and usually considers himself quite competent to treat the latter, instead of imme-

diately placing his patient under expert care, as he would were she suffering from even a minor surgical ailment.

The public should also learn that the repeated birth of dead children indicates ignorance or neglect, and can in great part be prevented under proper care; and furthermore that the development of ophthalmia in the children indicates neglect of the most rudimentary precautions. By way of parenthesis, I may add, that I have never seen a general practitioner, and only an occasional obstetrical specialist. make routine use of Crede's prophylactic methods; yet some of us advocate that its employment by midwives should be required by law.

The laity should also be taught that a well-conducted hospital is the ideal place for delivery, especially in the case of those with limited incomes. Moreover. they should learn that the average compensation for obstetrical cases is usually quite inadequate; and, although I regret to confess it, that doctors who are obliged to live from their practice, cannot reasonably be expected to give much better service than they are paid for. I think I may safely state that the obsterical fees are generally as much too low, as those for many gynecological and surgical operations are absurdly high. I am loathe to mention so sordid a matter, and I do so at the risk of being misunderstood, but I know from my own experience that many well-to-do patients will object to paying as much for the conduct of a complicated labor case, as for the simplest surgical operation which involves no responsibility.

Finally, the laity should be impressed with the fact that the remedy lies in their hands, and that they will continue to receive poor treatment as long as they do not demand better. Moreover, as long as they choose their medical attendant by the way he curls his mustache, or upon the recommendation of some foolish or ignorant woman, they will get what they deserve. If they desire competent attention, they should go for advice to conscientious medical men.

G. Development of Lying-in Charities: Even the most bigoted advocates of the education and regulation of midwives, must admit that the very poor will receive the best care in well-regulated lying-in hospitals and out-patient services. Consequently, those of us who are interested in the problem should advocate their extension and greater utilization, especially, as by so doing the condition of the poor will not only be alleviated, but at the same time greater facilities will be afforded for the training of medical students and nurses. Likewise, proper hospital accommodations should be provided for such well-to-do patients as may desire

to utilize them. These two aspects of the question are in a fair way of solution, and I imagine that in time the demand will be met.

On the other hand, we are confronted with the more serious problem of properly caring for the women of the lower middle class—with incomes of $700-$1,200 a year. Such women are unable to pay for adequate attention in their own homes. nor can they afford the current rates for board and medical care in the private wards of hospitals, while at the same time they are too proud to enter the public wards as free or part pay patients. This is a most serious problem and concerns not only obstetrics, but all the other branches of medical practice. How it will eventually be solved I am unable to predict.

The situation may be met partially by the endowment of low priced private rooms, which is still charity, and partially by teaching that it is only false pride which prevents the utilization of existing charities; but neither of these alternatives will solve the difficulty for more than a fraction of those concerned. As the members of this class form in great part the hope of the Commonwealth, it is essential that they ultimately receive better care in all branches of medicine. At present, they do more for the State than they receive in return, and it is probable that the question will remain unsolved, until we are prepared to face some form of modified socialism.

H. Cheaper Nurses: The trained nurse has been of invaluable aid in the development of modern methods of caring for the sick. Unfortunately, the compensation which she demands and deserves, puts her beyond the means of those in very moderate circumstances, and there is no likelihood that conditions can be materially altered. Consequently, even when patients of this class can secure competent medical aid, they are forced to be content with very inferior nursing; and one of the arguments in favor of elevating the status of midwives, is that they will serve as both doctor and nurse. As it is difficult to secure either a good doctor or a good nurse, it is extremely improbable that women of the class from which midwives must necessarily be recruited will be able to unite in one person the good qualities of both professions.

I feel that in large cities the problems may be partially solved by developing a class of visiting nurses, who would be willing to stay with the patient during the day of labor, make daily visits for a number of days thereafter, and supervise the activities of a partially trained helper, who would not only give the patient and her infant routine care, but in addition look after certain important household duties. If some such arrangement were possible, it would enable those of lim-

ited means to obtain fairly efficient nursing care at a fraction of the present prohibitive cost, and at the same time result in much better treatment on the part of careless physicians.

I. Training of Midwives: In 1850, Dr. James P. White, of Buffalo, introduced into this country clinical methods of instruction in obstetrics. Yet, the first part of this report clearly shows, notwithstanding relatively great development along these lines during the following 62 years, that our medical schools have not succeeded in training their graduates to be safe practitioners of obstetrics. If this has been the case with the relatively intelligent medical student, I must confess to great scepticism concerning the possibility of doing better, or even as well, with the class of women who are likely to become midwives, even if abundant facilities for their training were at our disposal.

Moreover, the fact that their employment is very restricted in both Boston and Montreal indicates that they are not absolutely necessary, even in cities with a large foreign-born population, and lends additional strength to the argument of those who believe in their ultimate suppression. Consequently, in large cities at least, I am prepared to advocate their gradual abolition, and their replacement by a marked extension of lying-in charities.

Furthermore, as the majority of respondents to my questionaire apear to believe that midwives at present do less harm than the irresponsible practitioner, they could be left alone with comparative safety; while those of us who are interested in the problem devote our energies to insisting upon radical reforms in our medical schools, and upon the education of the laity, in the hope of developing better trained medical men. I feel sure that this can be accomplished in time, but I am very dubious concerning the possibility of developing satisfactory midwives by any method of instruction.

On the other hand, I am quite prepared to admit that the question is more difficult in rural districts, where lying-in charities cannot be developed, and where the people are so poor and the distances so great that medical aid will be difficult to procure, and will become increasingly so as medical practitioners are better educated.

I know that in taking this stand, I shall be in opposition to many earnest workers, who think otherwise; but I hope that the deplorable condition of obstetrical instruction for medical students, as revealed by this report, may cause them to hesitate before definitely committing themselves to a propaganda advocating extensive training of midwives. If, however, it is decided to take any steps in the matter, I hope that

they will be drastic, and that no one will imagine that much can be accomplished by mere legislation, with pseudo-education and pseudo-regulation as in some States.

If anything is to be done, I feel very strongly that it can be accomplished only after a long campaign of education—not of the midwives—but of the public and its legislators, who must be taught that effective training will be very expensive, as it will require the establishment of special institutions, where long periods of practical instruction can be given, as well as the development of an efficient system of supervision, with power of punishment, which will be quite contrary to our usual lawless customs.

In other words, we should approach the subject as Germany and Italy have done, but at the same time be prepared for disillusionment, for, if the results are not vastly superior to those obtained in those countries, we shall have to admit failure.

Conclusions

A questionnaire containing some fifty questions concerning obstetrical education and the midwife problem was sent to the professors of obstetrics throughout the country. Forty-three replies were received, representing one-half of the acceptable and one-fifth of the non-acceptable medical schools, and indicate a most deplorable condition of affairs, briefly as follows:

I. Generally speaking, the schools are inadequately equipped for teaching obstetrics properly, only one having an ideal clinic.

II. Many of the professors are poorly prepared for their duties and have little conception of the obligations of a professorship. Some admit that they are not competent to perform the major obstetrical operations, and consequently can be expected to do little more than trained man-midwives.

III. Many of them admit that their students are not prepared to practice obstetrics upon graduation, nor do they learn to do so later.

IV. One-half of the answers state that ordinary practitioners lose as many women from puerperal infection as do midwives, and over three-quarters that more deaths occur each year from operations improperly performed by practitioners than from infection in the hands of midwives.

V. Reform is urgently needed, and can be accomplished more speedily by radical improvement in medical education than by attempting the almost impossible task of improving midwives.

VI. In my opinion the following reforms are most important:

a. Reduction in the number of medical schools with adequate facilities in those surviving, with higher requirements for admission of students.

b. Insistence in the University Medical Schools that the head of the department be a real professor, whose prime object is the care of hospital patients, the proper training of assistants and students and the advancement of knowledge, rather than be a prosperous practioner.

c. Recognition by medical faculties and hospitals that obstetrics is one of the fundamental branches of medicine and that the obstetrician should not be merely a man-midwife, but a scientifically trained man with a broad grasp of the subject.

d. Education of the general practitioner that he is competent only to conduct normal cases of labor, and that major obstetrics is major surgery, and should be undertaken only by specially trained men in control of abundant hospital facilities.

e. Education of the laity that poorly trained doctors are dangerous, that most of the ills of women result from poor obstetrics, and that poor women in fairly well conducted free hospitals usually receive better care than well-to-do women in their own homes. Teach that the remedy lies in their hands and that competent obstetricians will be forthcoming as soon as they are demanded.

f. Urge the extension of obstetrical charities—free hospitals and out-patient services for the poor, and proper semi-charity hospital accommodations for those in moderate circumstances.

g. Greater development of visiting obstetrical nurses, and of helpers trained to work under them.

h. Gradual abolition of midwives in large cities and their replacement by obstetrical charities. If midwives are to be educated, see that it is done in a broad sense, and not in a make-shift way. Even then disappointment will probably follow.

DISCUSSION

J. B. De Lee, Chicago: Dr. Williams' paper leaves nothing to be said. He has covered all the points with characteristic exactness. There is no question about it. Medical education in the department of obstetrics in the United States is below the standard maintained by the teaching of other departments, and continues to cry loudly for improvement.

Medical students are graduated with insufficient practical instruction in the important art of obstetrics. There is no question but that the medical men in the United States are not prepared to cope with obstetric emergencies. It is true that there are not enough qualified professors of obstetrics, also that there are not enough qualified instructors in the departments of obstetrics in our medical colleges.

In the United States, in a registered area of only 55 per cent. of our territory, there occurred in the year 1909, 7,791 deaths of mothers in child-birth. This represents only a little more than half of the whole area of the country, and it is perfectly reasonable to assume that if the entire country were registered, at least 12,000 maternal deaths would be reported annually. We must add to this, the deaths of mothers that are fraudulently reported from other causes, but actually are due to confinement. We must still further add to these, such deaths of women that follow operations, undertaken for the relief of disease, and cure of damages wrought by confinement, which deaths may occur months or years afterwards. I feel that the statement cannot be controverted that there die annually in the United States, as direct and indirect result of confinement, 20,000 women annually. If we think what a furore would be raised in the community if yellow fever were to take off 20,000 human beings in one year, and on the other hand contemplate the equanimity with which the public views this annual loss of 20,000 mothers, the comparison is striking.

We cannot measure the amount of suffering and invalidism entailed by bad obstetrical practice, but to one who views the procession of maimed and sick women that enter our hospitals, seeking relief from the diseases and accidents of child-birth, it is heart rending.

The babies: Hundreds of thousands of babies are permanently crippled, either mentally or physically, as the result of improper obstetrical management of their births, and in a goodly proportion the infant becomes blind as the result of carelessness. I wish, however, to emphasize this point, that the number of children becoming blind is very small to the number that are killed and injured by bad obstetrical practice, and if the same amount of energy now being expended on the prevention of blindness of the new-born were directed to the prevention of injury and death of children during labor, much more good would ultimately be accomplished.

What is the cause of all these miserable conditions? There is but one answer. The standard of obstetrical teaching and obstetrical practice in the United States is too low. The public has no respect for the obstetrician. He is looked down upon, not alone by the people, but by the doctors themselves. The people will not pay the obstetrician properly for his arduous work. Obstetrics is the hardest branch of medicine to practice. It robs the doctor of his sleep, destroys his office hours, interferes with all his engagements, and besides that, the actual work is exceedingly laborious. It requires an immense amount of skill, and very few physicians have the opportunity to acquire dexterity, because the schools from which they graduated did not have enough clinical material on which to teach them. The work is so meagrely paid for, that a young physician of ability prefers to go into some more lucrative department of medicine, particularly gynecology and surgery.

The public does not honor the obstetrician for his work, does not provide opportunities for him to perfect himself in his art, and blames him inconsiderately for his failures. The surgeon is given better opportunities to prepare himself. He is provided with better facilities for his work, and his efforts, whether good or bad, are more appreciated. If you wish proof of this statement, compare the surgical operating rooms in any of the existing hospitals with the maternity wards of the same hospital. The most desirable and the most beautiful rooms are selected for the surgeon, and his every want and comfort promptly provided. On the other hand, the least desirable and out-of-the-way portion of the hospital is assigned to the obstetrician. The cast-off apparatus of the surgical room is put down in the obstetrical room, and what time the interne has to spare after giving himself to the surgeon is devoted to the work of the obstetrician. It is small wonder then that the physicians, students and nurses go out into practice with a low and mean opinion of obstetrics, and this to my mind explains the mortality of 20,000 mothers annually in the United States.

It is said of the soldiers engaged in the Franco-German War of 1871, three-quarters of one per cent. of the men were killed in battle. I believe that the mortality of women in child-birth in the United States is very little less than three-quarters per cent. It would follow therefore much safer for men to go into battle, than for women to have children.

We have studied the causes and we have learned the effects. What is the remedy? It is not by educating the midwife to do better work, because we have seen that the mortality in the midwife's practice is little, or no greater, or surely not as great as that in the hands of medical practitioners, and further, those of you who know the material that would come up for the degree of midwife, will appreciate the difficulties of ever getting competent service from such women.

The one way to cure these evils is to educate the public to demand a high standard of obstetrics from the physicians. If the public demands good obstetrics, the doctors will give it.

How can this be done? Let us begin with the Women's Clubs in the United States. Let us tell them of the facts we have learned here today. The Women's Clubs in the United States are an enormous power, and they are growing more powerful in the civic and social betterment of this country. If we can disseminate among the women of our land the facts regarding obstetrics, there will rise an undeniable clamor for good obstetricians. The public will be forced to furnish the materials, and the patients, for the proper instruction of the doctors. They will build ideal maternity hospitals, maternity hospitals the equal, if not the superior of any surgical hospital in existence. The doctors, students and nurses connected with these ideal institutions will learn how much may be accomplished by good obstetrical work, and they will go forth to the community filled with enthusiasm for their work, and confident of their ability to reduce deaths, and limit the damages inevitable in confinement.

When public opinion has thus been raised and educated regarding obstetrics, the midwife question will solve itself. With an enlightened knowledge of the importance of obstetrical art, of its difficulties, of its high ideals, the midwife will disappear, she will have become intolerable and impossible.

Dr. Rachel S. Yarros, Chicago: The conclusions of Dr. Williams are true, but the public must demand good work and will get it. The midwives, objectionable as they are, cannot at present be abolished, I believe; but if they are, then lying-in hospitals must be established where the expense is not great and the women educated to go to them in the instances, chiefly among the foreign population, in which they now demand midwives. As a measure of expediency and as an improvement over the midwife, I recommend the education of the trained nurse to take care of normal cases, or to work as an assistant with the obstetrician.

Dr. Frank Lynch, Chicago: I believe that a little explanation of some of the conclusions of Dr. Williams is needed to an audience composed largely of laymen. In the medical schools of this country there are men of all grades. Real medicine began, it might be said, only about sixty years ago. Good surgical work began as recently as twenty years back. This paper, making a summary of obstetrics, includes the old and the young teachers and obstetricians, and young men are in the better position. The paper is true, but the statements must be qualified. Not all graduates go directly into practice; many go into hospital work and get experience. One school in Chicago practically insists on a year of hospital work, for which they give a degree of

honor. Until the public knows how to choose a physician there is no hope for good obstetrical teaching. What is wanted is trained men, not operating rooms. The way to get good teaching is to pay properly equipped men for teaching the young physicians.

Dr. George W. Webster, President Illinois State Board of Health, Chicago. I called the attention of the National Federation of State Boards in 1904 to the facts disclosed by Dr. Williams. The time devoted to obstetrics in some schools amounts to 150 hours. There are schools in which the time devoted to obstetrics in the entire four years is only sixty hours. There are only thirteen States in the Union having laws in any way governing the licensing and control of midwives. In fourteen States the law says that the provisions of the medical practice acts shall not apply to them. In all other States the laws are silent on this subject. I am convinced that the question is not wholly an educational one, but an economic one. In Chicago the services of a midwife may be obtained for $2.50, and if the service is as good as that of the physician, as Dr. Williams says, they cannot be blamed for accepting it. We must supply something good at an equally low price. We cannot legislate midwives out of existence any more than we can poverty, drunkenness or crime.

HAS THE TRAINED AND SUPERVISED MIDWIFE MADE GOOD?

By ARTHUR BREWSTER EMMONS, 2nd, M. D., Boston, Mass.,
and
JAMES LINCOLN HUNTINGTON, M. D., Boston, Mass.

Your Committee has asked of us to answer three questions.

Has the trained and supervised midwife made good?

Shall midwives be licensed? and

Shall midwives be abolished?

We have endeavored to follow closely the Committee's wording and have divided the paper into three parts, each part answering one of these questions. In doing so, we may be guilty of some repetition, but we feel that to be unavoidable and justifiable under the existing conditions.

We hope to show you in the following pages that the midwife never has and never can make good until she becomes a practising physician thoroughly trained; that midwives should not be licensed save in those States where they are so numerous that they cannot be abolished at once; and concluding with the third question by showing how midwives can be gradually abolished and a system substituted whereby the mothers of the future shall receive in their hours of greatest need the attention of men and women thoroughly grounded in obstetrics.

Has the trained and supervised midwife made good?

As England is in many ways our nearest neighbor, it is of especial interest for us to see how the situation in England answers our question—to see if the trained and supervised English midwife has made good. And first let us turn back the pages of history.

Four centuries ago the midwives together with the physicians and surgeons were licensed by the bishops. The practice was continued down to the middle of the eighteenth century when the College of Physicians of London assumed this responsibility. Some ninety years ago they ceased this practice and from then until 1902, the midwives in England were for the most part untrained and absolutely without regulation. And yet we have plenty of evidence that they were very active and that most of the obstetrical cases, except among the well-to-do, were conducted by them. We are most of us familiar with the famous picture of the London midwife as

sketched by Charles Dickens in the pages of *Martin Chuzzlewit* —the squalid, drunken Sairey Gamp!

To be sure there were always a few trained midwives, the graduates of leading lying-in hospitals. These seem to have become more numerous and were well organized several years before the opening of the present century.

During the closing decades of the last century, every few years found a bill before Parliament for the licensing and regulation of the midwife. These bills were regularly crushed, usually by medical advice. In spite of these defeats the promoters were steadily gaining in strength and influence while the opposition was careless and divided as to the grounds on which the opposition was based. The opposition was the British Medical Society with the exception of the obstetricians who for the most part were in favor of the bill. There was no counterplan or substitute proposed. Many of the physicians were undoubtedly influenced by the highest motives, but there can be no doubt that more were opposed to the Midwife Bill because they feared for loss of practice. Authorities vary in the strength of the medical opposition to the bill and figures from 70 to 95 per cent of all the physicians of England are quoted. The supporters of the bill were the Obstetricians, Women's National Liberal Association, Women's Industrial Council, Women's Liberal Federations, The Incorporated Midwives' Institute and representatives of the Body of Coroners.

In 1900 the measure brought forward by these combined forces was only defeated by a rather determined effort on the part of the British Medical Society and with the opening of the next Parliament the battle was on again fiercer than ever. In spite of a campaign carried on by the medical press the Midwife Bill was made a law on the 30th day of July, 1902.

Reduced to simplest terms this law prohibits any woman from using the name of midwife or its equivalent, or to habitually and for gain attend women in childbirth unless certified to do so by a Central Board. Violations of this law to be punished by fine or suspension from practice or both. All authority is in the hands of the Central Midwives' Board, composed of nine persons, four to be medical practitioners appointed by medical bodies of recognized standing. Of the other five, one at least must be a woman. This Board was to act under the approval of the Privy Council and after consultation with the General Medical Council.

The most essential requirements for the midwife as laid down by this Board are: ability on the part of the candidate to make the obstetrical examination, external and internal; the delivery of 20 lying-in women under competent super-

vision; and the following of an equal number during ten days after labor. The candidate must also have attended a sufficient course of instruction of not less than three months, and have passed a satisfactory examination.

Let us try and see how the law has worked out. The English midwife is today, for the most part, trained in any one of the leading lying-in hospitals in England, instructed by members of the staff. There are at the present time 31,625 midwives on the roll of the Central Midwives Board, but probably not more than half this number are in actual practice.

Certainly in many places they are working in harmony with the medical men and are saving him from a class of patients that he found irksome and unsatisfactory. There can be no doubt but that the Midwife Bill in operation has improved the situation in England—it has substituted a cleanly and fairly intelligent midwife for the dirty untrained midwife and the utterly careless practitioner.

But in passing judgment on the system or taking it for comparison we must remember that the system of midwife attendance always flourished in England—the passage of the Midwife Bill in England did not institute a new system, but attempted to correct the abuse of the then existing system. Obstetrics in England has not been on the same plane as that existing in America for the past hundred years. We feel that in England today the situation, while improved, is far from being ideal. We feel that in a country where the midwife system of obstetrics is adopted the community as a whole loses, because this form of practitioner is a make-shift admittedly incapable of coping with the abnormalities of pregnancy, labor and the puerperium. The more midwives there are just so much the worse for the community at large, which is thus being supplied by what at best can only be second-class service.

Let us now turn to the Continent of Europe to see how the question can be answered there.

In practically the whole of Europe obstetrics has always been conducted by midwives and the system of training and regulation is much the same in all these countries. Certainly the differences between the midwife in Italy, France, Austria and Germany are very slight indeed. As we have had opportunity to study thoroughly the question in Germany, let us take up the situation there in detail, and see the exact position of the German midwife. We feel that a study of her position will show not only the breadth and thoroughness of her training before she is allowed to assume definite responsibility, but also the complicated and complete supervision regarded as essential according to German ideals. Such a

study, we feel, will show us what preparations we must be ready and able to make should we decide to adopt a system with the midwife as the solution of our present condition, and also what results we may fairly expect to obtain from such a system.

In Germany practically all normal obstetrics both in and out of Kliniks is conducted by the midwives—though to be sure, an increasing number of persons are by the process of education and cultivation appealing to the physician for at least his supervision at such a trying time. In Germany all classes are represented in the schools of midwifery, from the professor's daughter to the simplest peasant girl.

We must realize that Germany has been training midwives for generations, to understand her hold upon the general public. The trained midwife followed as naturally in the course of development as the trained physician, and we find with the knowledge of the necessity for clean obstetrics, stringent laws have been passed for her education and regulation.

The German midwife of today is trained in the Government Kliniks by university professors who are salaried by the State, often the same professors as those who are responsible for the training of the medical students. In most cases the midwife's course is six months, all of which time she lives in the hospital where she is trained. Her textbook is issued by the Government and constantly revised so as to be up to date. This she must know almost by heart from cover to cover. This book treats anatomy, including the entire skeleton; the nervous, alimentary and circulatory systems as well as the genito-urinary tract. There is also considerable physiology and bacteriology as well as normal and pathological obstetrics. Besides this there is a statement of her legal status. This book is supplemented by lectures and explained by recitations occupying in all about twelve hours a week throughout the course.

She also has thorough drill in the principles of diagnosis by means of abdominal palpation, auscultation, pelvimetry and vaginal examination. She has almost daily drill in the "vaginal touch" by means of the manikin and the fetal cadaver.

She is taught the most essential tests for examination of the urine. She is required to make vaginal examinations and to deliver a certain number of cases in the confinement wards under the direction of the resident physician and graduate midwives. Here also she is taught, as far as is possible in the limited time of her instruction, the principles of aseptic technic.

At the conclusion of the course the midwife must pass a rigid examination both oral and written on the subjects she has pursued. Besides answering questions for some 15 minutes, the candidate must demonstrate her knowledge by making a diagnosis of presentation and position in the manikin, outlining her methods of procedure in the given case. As we were present at such an examination we can definitely state that it is a thorough and severe test of the candidate's knowledge of the subject—it is one that the average graduate of an American medical school would have difficulty in passing with distinction.

Now let us turn to the midwife in practice and see what her position is. She is constantly under the supervision of a physician in the Government service whose duties are in a measure the same as our medical examiner's plus many of those of a Board of Health officer.

To this officer the midwife must report before she enters upon her practice in the given locality; he examines her credentials and establishes her in practice and so long as she remains in his jurisdiction her work is constantly subjected to his supervision. To him she must report immediately all still births and deaths, all cases of puerperal fever and ophthalmia neonatorum. Her home, her equipment, her clothing and her person must always be ready for his inspection. She may lose her right to practice if her home is dirty or if she is caring for an obstetrical case under her own roof. The contents of her bag and her case book are outlined by law. She is required to wear clean and washable gowns when in attendance on cases. Her hands must be clean and the skin and nails in good condition at all times. She must report to this officer any septic lesion or ulcer on any part of her body. Violations of these rules will lead to swift punishment—fine or imprisonment, or both.

The midwife must also report immediately to some local physician any symptoms suggesting eclampsia or miscarriage or any serious complication of pregnancy.

She must be equally prompt in reporting any case of antepartum hemorrhage, contracted pelvis, or abnormal presentation—and this includes a breech presentation. Should the second stage last more than 2 hours without progress; the pulse or temperature rise above the limit considered not normal in obstetrics; the fetal heart rise above 180 or fall below 110; the placenta remain in the uterus too long after delivery; the uterus fail to contract and continue to bleed; or the perineum rupture during delivery, the midwife in each and every instance must notify a physician in writing of the exact

condition or communicate with him personally over the tele phone. And the physician must in such a case respond at once, unless actually engaged on a case that requires his immediate attention, when he must so communicate to the midwife or the messenger. Should the midwife or the physician fail to follow these laws, they are subject to punishment.

In case an emergency arises where time is of utmost importance and her powers are limited by law from doing what she knows to be necessary, after notifying the physician or even before if the emergency demands, it shall be her duty to do whatever seems necessary for her to perform—save only version and instrumental obstetrics—but in each and every instance she must communicate as soon as possible with the medical examiner, telling him the exact circumstances and abiding by his decision as to whether or not her action was justified.

This gives a rough picture of the duties and responsibility of the German midwife and the careful supervision exercised over her. Added to all this she must return every few years for re-examination after a few days' residence in the Klinik so that she will keep up to date.

But let us see if the midwife in practice lives up to all this. In the first place, one observing the work of the midwife in the confinement ward is struck by her lack of what is known as the aseptic conscience; that is the knowledge that one is, or is not, surgically clean. After faithfully scrubbing her hands for the allotted 15 minutes, the midwife will unconsciously touch something outside of the sterile field and continue as if surgically clean. This the writers have often observed. Of course, there are exceptional pupil-midwives who do not fall into this error and these are usually the ones who have graduated as nurses before beginning the training in the midwife school.

But one cannot help feeling that if these breaks in aseptic technic are made in the hospital where the pupil is working under vigilant instructors, how much more apt she will be to fall into unsurgical habits while working in a peasant's home. This carelessness is even more marked in the older midwives when they return for instruction.

Obstetricians in Germany are far from satisfied with the present system. They admit it is illogical, but it is so firmly established it seems impossible to make a change. Puerperal fever is much more prevalent than should be. Prof. Bumm states in his text-book on obstetrics that in one year out of 2,000,000 births 5,000 deaths from puerperal fever were re-

ported and, of course, many more failed to be accurately reported.

A year or so ago a Berlin physician prominent in gynecology wrote to a committee of the American Medical Association asking for information in regard to the number of deaths from puerperal fever in this country, as he understood that we were without midwives. The answer was made that not only were we without vital statistics of any value, but that we were in many States overrun with midwives. The Department of Medical Economics of the Journal of the A. M. A., referring to this correspondence, add, "Midwifery is not as well regulated in this country as in Europe, and yet the harm done is probably less, since midwives are not so numerous."

Thus we have in Germany a system of training and regulation of the midwife so complete as to be almost ideal, a system of seemingly perfect harmony between the midwife and physician. But let us look a little closer at this very point and we shall see why the thoughtful German obstetrician is dissatisfied with the present scheme.

There are rules for harmony laid down in the statute book, but the midwife is not well paid, and it is profitable for her to deliver the case if possible without calling in the physician, so she is all too apt to let the case go as long as seems safe without her falling into the clutches of the law. Then too the physician when called to such a case is far from being as careful as if it had been his case from the beginning, for it is so easy to say that had he been called earlier all would have been well. The obstetrician cannot give his best care to a case under such circumstances. Then there is the other great defect in the system that unlike any other branch of medicine there are two standards of skill offered to the public.

Thus we see instead of the perfect harmony a waste of precious minutes because of greed and ignorance; divided responsibility because of the nature of the system and also because of jealousy; and two standards of skill where science and logic demand but one. And so even on the Continent where ages have given the midwife an established position, yet the leading obstetricians will tell you that the midwife has not made good.

It is almost absurd to ask the question "Has the trained and supervised midwife made good in America?" We have never had a system of training of midwives worthy of the name, neither have we had any successful method of supervision, with the single exception of New York City, details of which have been presented by another speaker. The fact is, the midwife is not a native product of America. She has

always been here, but only incidentally and only because America has always been receiving generous importations of immigrants from the continent of Europe. We have never adopted in any State a system of obstetrics with the midwife as the working agent. It has almost been a rule that the more immigrants arriving in a locality, the more midwives would flourish there. But as soon as the immigrant is assimilated and becomes a part of our civilization, then the midwife no longer is a feature in his home.

We also know that the finely trained midwife who comes with her diploma and her sterilizer from the schools of the Old World, finding no use for either of these articles, forgets that she ever possessed them and becomes to all intents and purposes an untrained midwife. There are exceptions, but in our experience they are few.

No! We in America are not willing to trouble ourselves with the enforcement of the details of a code of laws rigid enough to make a midwife attend to her duties and practice within her narrow boundaries as laid down for her in the Old World.

We can safely and truthfully say that the midwife has not made good in America, and we see no possibility of any system whereby even by a lax use of the phrase we could predict for her that she would make good!

Shall Midwives be Licensed?

First let us see the minimum amount of care which in the light of modern medicine it is fair, right and humane to offer the impecunious mother. Then let us consider whether the midwife can be expected to reach and maintain such a standard and if so at what cost of money, time and effort.

We suggest the following as a brief and fair summary of the minimum training which may be ordinarily demanded today of those who are to assume the care of the expectant mother.

Ability to make the preliminary obstetrical examination; and this includes knowledge of the use of the pelvimeter and ability to auscult the foetal heart. In other words, to make a diagnosis of pregnancy and to determine whether the bony development of the mother is normal enough to make labor a safe procedure.

Knowledge of how to examine the urine of the pregnant woman so as to receive the first warnings of threatened eclampsia, the most serious complication of an otherwise normal pregnancy.

Ability to conduct a normal case of labor. And this is first of all asepsis—not only the theory but the trained instinct of

surgical cleanliness and how it can be maintained—thus tending to prevent puerperal fever, the great cause of death to the mothers of the past and now rarely seen where asepsis is practiced. Ability to make the internal examination, thus being able to diagnose many of the serious complications of labor in time to take the proper steps to save both mother and child. A knowledge of anesthetics, now pretty generally accepted as advisable in all cases of labor; humane and useful agents, dangerous in inexperienced hands, but frequently a necessity.

Ability to properly care for the breasts, to supervise the nursing and proper hygiene of the infant.

In the light of modern medicine, we know these are the simplest requirements and the right of every mother in civilized communities. Much more than this is to be expected of the obstetrician. But as we read through this list, how many teachers of obstetrics, judging from their experience in teaching students and nurses would care to undertake the training of the midwife as we have seen her in the city slums? How many would care to feel the responsibility for her work in practice? But if the teachers of medicine of experience cannot accept this responsibility, what are we to do? The obvious answer is to keep training the midwife until she has reached a sufficient degree of efficiency. Can this be done in America? We feel that it is impossible. The story of medical education in this country is not the story of complete success. We have made ourselves the jest of scientists throughout the world by our lack of uniform standard. Until we have solved the problem of how not to produce incompetent physicians, let us not complicate the problem by attempting to properly train a new class of practitioners. The opportunities for clinical instruction in our large cities are all too few to properly train our nurses and our doctors; how can we for an instant consider the training of the midwife as well?

The midwife is called in question today not because of the popular demand for her services, but because investigation into disease and death has revealed her working in her filthy surroundings and has shocked the medical and lay public into action. Let us who are pledged to consider the welfare of the infant see that this action is not misdirected.

The midwife is willing to undertake maternity work that no well-trained obstetrical nurse would think of attempting, because. in the first place, she is ignorant of the situation—she has the over-confidence of half knowledge. She is usually unprincipled, anxious only for the fee, and callous of the feelings

and welfare of her patients. She looks upon her work as a legitimate form of livelihood, not as an ennobling profession.

But let us look at the picture from another standpoint, and consider that the midwife is licensed. The question of regulation is one that goes hand in hand with the licensing power. To license the midwife and then neglect to regulate her has produced the results in Illinois, Maryland, and New York which have started the discussion of the whole midwife question. We can take it for granted that all will agree that the licensed midwife must be regulated. How is that to be done? The obvious answer is by legislation. But we know by experience that in America legislation without public sentiment behind the law is absolutely futile.

Let us suppose, however, for the sake of argument, that the impossible has been accomplished, that we have an aroused community and laws as stringent as those of Germany for the regulation of the midwife, we must realize that it means in each community inspectors trained in medicine and paid by the Government to give their exclusive time to supervising the midwife, and not only that, but a medical profession forced by law to respond to the call of the midwife in trouble.

Do you honestly think for one moment that we could accomplish this in America?

But let us grant all this as possible and consider whether it would be worth while. By gradual steps we should have evolved a double system of obstetrics enforced by law through well-paid medical officers and backed by popular sentiment—would it be a success? We answer, No! It would be a double system, two standards of excellence which can never work together, and yet based on the assumption that they are interlocking parts of the same machine.

Why should we adopt in obstetrics this double system? Certainly there can be no more important branch of medicine than this and yet with the possible exception of opthalmology, we have no attempt in any field of medicine to adopt a double system of practice. Why should we not oppose the midwife on the same ground that we oppose the optometrist? Both because of their limited training are incompetent to bear the responsibilities they attempt to assume. And whereas the worst the optometrist is likely to do is to subject his victim to financial loss and injure his eyesight, the midwife can, by her ignorance alone, cost the community the loss of two lives and not only escape any punishment but be rewarded by a fee for her activities. And when we picture the unnecessary and enduring sorrow her act has caused we should think well before we put such power in her hands.

Should the Midwife be Abolished?

We feel that this question should be answered emphatically in the affirmative, when and wherever it is possible. We feel that in this position we are but keeping step with progress in preventive medicine and following out the logical solution of what is best and safest. But we go further and feel certain that the untrained and unscrupulous physician should be put in the same class with the midwife and laid aside as soon as is possible by guarded legislation and education of the public conscience.

We are not satisfied with generalities, as we feel that sweeping condemnation is not enough to bring about a change of any value.

Let us show definitely and in detail just exactly how these much-needed reforms can be made. If our remarks seem didactic in dealing with conditions outside of our own State, among surroundings we know little of—pardon us, we mean no possible offence. We are dealing with a problem about which it is next to impossible to know, except by first hand, all the details and facts.

To begin with, let us show you the condition in Massachusetts and what we feel to be of vital importance in our own State. By the Medical Practice Law, midwives are excluded from the practice of obstetrics. They have been found violating the law and in two or three instances have been caught and convicted and have paid fines for practicing medicine without a license. In spite of this, some hundred and fifty women are practicing as midwives. These are for the most part, poorly trained and incompetent women. Their stronghold is in the manufacturing cities of about 100,000 population, largely composed of immigrants. There are a few midwives in Boston, but their practice is small. We feel that in Massachusetts, under such favorable circumstances, the State and local medical societies should see to it, that the law plainly written on the statute books be enforced, and at the same time by dispensary systems provide for the immigrant population.

In States where the midwife is practically unknown, it should be seen to that the Medical Practice Law excludes the possibility of midwives practicing within the limits of the State.

In States where the midwives are not forbidden by law to practice and are numerous, a well organized license and regulation system should control those in practice. Outline for them the minimum standard for their cases and enforce at least this standard by taking away the licenses of those who

violate the law. Renew the old licenses every year and issue no new ones. Thus the midwives will gradually be excluded from practice by their own incompetency and by the lapse of time. At the same time earnest endeavor must be made to provide competent obstetric care for the impecunious.

In States now overrun with midwives the task is harder, but we think neither discouraging nor impossible. Have a thorough system of examination given in German, French and Italian, and enough midwives will be able to pass such an examination to care for those who will only be satisfied with the attention of the midwife. Then by inspection keep these women up to the highest standard they are capable of pursuing. Only allow those to practice who can pass the examination, and have the license to practice an annual affair based on the record for the previous year. Then by gradually raising the standard and providing dispensary care for all who will apply, the problem in a few years would simplify itself. Of course, this is with the understanding that the schools for midwives which have been proven on inspection to be merely diploma mills, be abolished, and the midwives drawn to supply the demand largely from the graduates of the continental schools—institutions with which we can never hope to compete.

We wish to present to you in detail two successful systems for providing obstetrical care for the poor of our cities. We offer these two not as any better than other institutions elsewhere in the country, but merely to present the working plan of a system that can be applied with modification to any surroundings.

We first wish to show you the working of the Boston Lying-in Hospital, which last year cared for the confinement of 829 women in its wards and 2,007 women in their own homes.

The patients are supervised in a pregnancy clinic from the date of application as soon as the condition is diagnosed, until they fall in labor. The pregnancy clinic is supervised by a corps of obstetricians who are assisted by the house officers and nurses in carrying out the work. When the patient falls in labor she is either delivered in the wards of the hospital or in her own home, depending on the nature of her case, her place of residence, her inclination and, to a lesser degree, her ability to pay. If she is confined at her home she is attended by a student externe. These student externes are for the most part undergraduates of the Harvard Medical School or post-graduate students from other institutions. They live at the hospital or in the branch of the hospital, which is located in another congested section of Boston, for a period of two weeks; their rooms and the care of the same being provided by the hos-

pital management. These externes are constantly under the control of two resident physicians who give their exclusive time to this work; these resident physicians being in turn under a staff of older physicians who are constantly on call for any serious emergency. How successfully this has worked out can best be shown by the statement that during the past year these 2,007 cases were delivered with no maternal mortality. But another encouraging and very practical feature has been that these 2,007 patients voluntarily contributed to the support of the hospital the sum of $2,571.00 or on the average $1.28 contributed by each patient and the total expenses of the out-patient department were $1,763.18, leaving a net gain of $807.82. Certainly this institution can not be accused of pauperizing the community.

We feel that some such scheme as this can be carried out in every medical center where medical schools are near at hand. In the smaller cities away from medical schools the young doctor, the visiting nurses' association and a few beds in a hospital give a very excellent substitute for this more elaborate system. Let us look at such an institution at work.

The City of Manchester, New Hampshire, has 70,000 inhabitants, including a large foreign population. In a central location is the building of the City Mission, a non-sectarian institution which is under the management of the Missionary Board of Control in which all the churches of Manchester are represented—up till now, however, the Roman Catholics have not entered into co-operation. In this building are rooms given over to the use of the District Nurse Association, which is an important factor in this scheme. The active executive is the city missionary, a very able woman.

Application is made to the City Mission by those unable to employ a physician. The home is visited, the need determined and the district nurse is called in. About 150 obstetric cases are cared for annually. These are attended during confinement by the young physicians of the city who are members of the local medical society and have signified their desire to be on call for obstetrical cases among the poor for two months of each year. Thus the young practitioner gains experience and may even acquire patients for his future practice. There is also a city physician who is required to take care of paupers. But few self-respecting poor are willing to sign papers to obtain his services. For those cases which present complications which can not be properly dealt with in the patient's own home, there are three beds in the local hospital at the disposal of the City Mission. We learned that although there

were a few midwives in Manchester they had but little practice and only among the newly arrived immigrants who were ignorant of the City Mission and its work. This arrangement has apparently worked out well and there has been no indication of abuse of medical charity. This City Mission is supported by public subscription, including donations from the various mill owners and manufacturers of the town, the various women's clubs of the churches as well as the generosity of the charitably inclined well-to-do. The city government gives nothing and it is not desired that it should, for it has been found that when the city aids, others cease to feel the obligation and personal interest in the work.

Such a plan it will be seen includes the social workers, the district nurse and the physician. To this is added possible hospital care in critical cases. To this might be added with advantage, where the demand was sufficiently great, a supply woman directory and a list of available wet nurses. This system is efficient, economical and has proven satisfactory by years of service. We see no reason why it cannot be applied with modification in the smaller cities.

Conclusion

The object of this meeting of this section of our National Society we believe to be to fully consider the facts presented concerning midwives in general and the midwife in America in particular. From this consideration we should draw conclusions and lay out a policy national in scope. Were such a policy accepted by the several States, each separate community must consider local conditions, opportunities and resources, and apply the principles of such a policy as far as is possible to meet these given conditions. We all should return to our separate homes determined to carry out the plan which will finally give our community the best system of obstetric care which is practicable under the circumstances.

So let us be far-sighted in our plans and produce a policy nation-wide in scope and yet plastic enough to be shaped to the needs of each and every community. And let it all tend towards that goal for which we must all sooner or later strive, a single standard of obstetrical excellence, at the disposal of all, rich and poor alike. A standard which only takes into consideration the best possible immediate attention for the welfare of "All women in the perils of child-birth."

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OBSTETRIC CARE IN THE CONGESTED DISTRICTS OF OUR LARGE AMERICAN CITIES

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The problem of furnishing satisfactory obstetric care to the poor and moderately poor of our large American cities, on an economical basis to all concerned, is a vital problem in the study and prevention of our too high infant mortality, as well as the too high morbidity and mortality of the mothers, on whose welfare the life and health of the infant depends.

For the sake of the lay members, who may not be familiar with modern obstetric procedures, it may be informing to say that care during child-birth is now considered, in intelligent communities, a surgical procedure. For example, the successful preservation of surgical asepsis, even by the best trained men and women, is at all times and under the most favorable circumstances a difficult matter.

Dr. Edgar, of New York, in his recent paper on "The Remedy for the Midwife Problem," says that the midwife requires a course of instruction more comprehensive than that of the trained nurse, including thorough drill and instruction in obstetrical examination including asepsis and cleanliness in its broadest sense.

If argument were needed to prove obstetrics a branch of surgery the statistics of the New York Lying-In Hospital for the year 1909-1910 might be used. Dr. McPherson reports 5,073 patients cared for, of whom 1,037 are classed as "operative": that is more than 20 per cent, or one in every five required some, though probably often a small, surgical procedure.

That the layman recognizes the importance of obstetric knowledge is illustrated by the officially expressed legal opinion of Justice Rugg, now Chief Justice of Massachusetts, in the case of the prosecution of a midwife for *practicing medicine* without a license. He says: "Revised Laws (Massachusetts, Chapter 76, Section 7) mentions obstetrics as one of the subjects of examination for the purpose of testing an applicant's fitness to practice medicine. This goes far toward showing that obstetrics is a branch of the practice of medicine. It requires no discussion to demonstrate that when, in addition to ordi-

nary assistance in the normal cases of childbirth, there is the occasional use of obstetrical instruments, and a habit of prescribing for the conditions described in the printed formulas which the defendant carried, such a course of conduct constitutes the practice of medicine in one of its branches."

"Although childbirth is not a disease, but a normal function of women, yet the practice of medicine does not appertain exclusively to disease, and obstetrics, as a matter of common knowledge, has long been treated as a highly important branch of the science of medicine."

Let me emphasize my point by a simple example. Should one of the women of our crowded cities burn herself over an area equal to that of her face, what degree of surgical skill, knowledge, and cleanliness would you consider necessary for her care? We consider that the skill, knowledge, and cleanliness required for her care is not so great as that required for the proper care of an ordinary case of childbirth. Both may recover with little or no care, or with home remedies, yet such risks are too great to be run in a modern community. Tradition has blinded the public, till now, to the dangers of childbirth, while they see and fully realize the danger from the burn.

The standard of obstetric care, then, should at least be comparable with the surgical care furnished these same people.

The unsatisfactory results under the midwife and the poorly equipped physician, who is equally to blame with the midwife, are the cause of this present inquiry. We seek a remedy. The need of a remedy is perhaps most keenly felt in the crowded districts of New York and Chicago, and to a less extent in other large cities. Here an immediate and local remedy is needed. This need should be met by appropriate local means. In considering such immediate and local needs, however, let us not lose sight of the larger problem of forming a policy looking to the *prevention* of similar conditions arising elsewhere.

Let us glance for a moment at the economic side of the problem. The cost of the midwife to those employing her probably averages at least $5 to $10 a case. Dr. Darlington, Commissioner of Health, recently estimated that in New York City in the last six years over 42 per cent of the total births were reported by midwives, approximately 50,000 a year, giving an estimated total cost to these poor families of one-quarter to one-half million dollars annually.

Dr. Lobenstine, of the New York Lying-In Hospital, gives the following figures, which he considers "as reliable as can be

gathered in the city today, and entirely free from bias." One-third of the totally blind owe their blindness to opthalmia neonatorum, the responsibility being about equally divided between doctor and midwife. He further states that the midwife is responsible in New York for about one-third of the abortions, of which there are a large number. These abortions contribute a large proportion of the mortality among these poor women. The dangers to the mother-to-be, he adds, are from ignorance, filth, and criminality of the midwife.

Miss Crowell's report shows us that approximately 90 per cent of these midwives are unfit.

I should like to emphasize what may be called the negative side of the midwife. Dr. Edgar states that the teaching material in New York is taxed to the utmost. The 50,000 cases delivered by midwives are not available for this purpose. The midwives are not working in harmony with the better agencies of medical and sociological progress. We have spoken of the "poorly trained" physician being equally responsible with the midwife for the present unsatisfactory obstetric service. Might not this wealth of material, 50,000 cases in New York, be gradually utilized to train physicians satisfactorily?

Contrast the work of the midwife with that of the maternity hospital and dispensary. The Boston Lying-in Hospital Out-patient Department cared for 2,007 cases with no deaths, the dangerous cases being sent to the hospital, where all recovered. The extra cost to the Boston Lying-in Hospital of these 2,007 dispensary cases was less than 83 cents per patient, while at the same time these patients subscribed voluntarily an average of $1.28 each. Thus the hospital received a balance of $807.82 over their actual cost.

We have, then, 50,000 women cared for in New York by the midwife at a cost to them of probably $5 to $10 apiece, with an admittedly high morbidity and mortality, this valuable material being lost for teaching, contrasted with 2,000 women cared for by an out-patient department at an average cost to them of $1.28 with *no* mortality, and the added advantage of furnishing material for training physicians and nurses, the proper instruction of mothers in the care of their infants, a system in harmony with modern surgical teaching, susceptible of easy control, ready to co-operate with sociological and charitable agencies.

It will be urged that the midwife, besides giving medical attendance, renders the needed service of the woman in the home. Mr. Richard M. Bradley, of Boston, has reported the successful development in the past three years, in the town of

Brattleboro, Vt., of a Neighborhood Association for mutual help in sickness, which has, I think, a practical bearing on this point. In brief: a central office, a few capable trained nurses. Each trained nurse has under her a gang of six or eight untrained women helpers, paid in proportion to their capabilities. The trained nurse places one of these women in each home of sickness and there instructs and supervises her. Thus skilled labor is not wasted where not actually needed and unskilled labor is utilized with complete satisfaction and great economic benefit to the consumer.

Basing my *conclusions* on such data I am led to believe that New York City could in a short time care for all of her maternity cases by extending the dispensary system into the districts now covered by the midwife. The one-quarter to one-half million of dollars now annually paid the midwives by these people would, if wisely administered, provide ample funds for first-class work, in harmony with the progress of modern surgical knowledge, capable of far better control, and providing material for teaching and learning superior, perhaps, to any in the world. With such a system the morbidity and mortality would undoubtedly fall satisfactorily. The diffusion of the knowledge of hygiene and the proper care of the infant would naturally follow rapidly.

Supplant the midwife by extending comprehensive dispensary systems and by organized supply-women.

Such are the lines, we believe, along which this problem of the obstetric care in the congested districts of our large American cities will eventually be solved.

DISCUSSION

Mrs. Wm. Lowell Putnam, Boston: The presentation of the case of the community versus midwives which we have just heard is to me as a laywomen and one of that community, of intense interest. I believe that the most effective movement both to abolish midwives and to improve the general condition of obstetrical practice must come from laywomen, for the accusation of professional jealousy, which is often used by unscrupulous folk to prevent the passing of laws adequately regulating the practice of medicine is in that case impossible, and the appropriateness of women's demanding for themselves and their children proper care at this most important moment in the lives of both, must appeal to all men.

The protection of women from the perils of childbirth is, indeed, a matter vital to the whole of humanity, men and women alike, for in it is involved the vigor of the future race, but we women have

that future peculiarly in our keeping. Ours is the privilege of guarding its life, not only during infancy, but more important still, before it reaches the period of babyhood at all.

The philanthropy of the past has been all too prone to overlook one of the fundamental laws of nature, the law of the survival of the fittest, and to supersede this without counting the cost. Indeed, as decent members of society, we could not help superseding it. Because a man drinks, we cannot let his wife and children starve before our very eyes, even though we feel sure that some, perhaps all, of those children are going to be undesirable members of society. Our mistake has been, not that we have tried to do away with the effects of this law, but that we have done so while still leaving the causes of those effects to continue their action. We have been kind to the present at the expense of the future. The study of eugenics is, however, revolutionizing our methods. We are learning to prevent, not to palliate, and though we cannot yet begin with the grandparents, we can at least protect the next generation in its infancy and through the still more important period of its prenatal life.

Believing that the prenatal period is the cornerstone of life, and with prevention as a watchword, the Committee on Infant Social Service of the Women's Municipal League of Boston has been carrying on work with expectant mothers since April, 1909—two and a half years. It is of this work that I particularly want to speak, because women can best do it, and because the education it gives the community in the value of proper care for both mother and child should do more than anything else to abolish the evil conditions now surrounding the birth of children.

It was necessary in beginning a work of this sort to seek our patients through existing institutions, and the greater number have been referred to us by two of the largest maternity hospitals in Boston, the Boston Lying-in and the Massachusetts Homeopathic Hospitals, but other patients have applied personally for care or have been brought to us by their friends or other agencies. These are visited in their homes by a (very well) trained nurse, who keeps their condition under very close observation. Our rule is never to allow more than ten days to pass without a visit, however well the patient may be, and in case of illness, to see her as much oftener as is necessary. Although our patients are scattered all over Boston and the nearer suburbs, one nurse has been able, in 2½ years, to care for over 1,000 women in this thorough way. She never personally prescribes anything more than cascara, but she gives advice with regard to diet, fresh air, exercise, clothing and the many conditions which are liable to arise, and in dealing with which much tact and knowledge are often required. One other thing the nurse does, she relieves much pain by the strapping of those backs which are weak and need such support. If any unfavorable symptoms develop,

the patient is sent at once to the hospital, or her private physician is called in.

From the diagnosis of our cases made by the hospitals, we find that during the first year of work the percentage of cases with symptoms of threatened eclampsia was slightly over 10 per cent, but during the second year this percentage dropped to a trifle *under* 5 per cent, and during the last six months to four-tenths of one per cent. We cannot but feel that the frequency of our visits has had much to do with these results, and that by the early discovery of threatening symptoms, eclampsia can usually be prevented. In the synopsis which was made a short time ago it was stated that no case of this disease had ever developed among our patients, but, to our great regret, on Monday of this week, when the nurse went her rounds, she found a patient in convulsions. By prompt measures both mother and child were saved, but the case *had* developed. Owing to the fact that this patient was out when the nurse last called, she had not been seen for a fortnight. In so far as the circumstances throw any light on preventive measures, it is to emphasize the fact that the outside limit of ten days between visits set by the Committee should certainly not be exceeded.

The prevention of eclampsia, however, is not the only benefit derived by the women from the nurse's visits. The percentage of miscarriage among our patients has been very low, only .02 per cent, as against a general average of about 15 per cent, and in the case of premature births it has been only 1.21 per cent; in other words, we have had only one miscarriage and five premature births in our second year out of a total of over four hundred patients. As in the cases of eclampsia, these figures are distinctly lower than those of our first year of work. There has been no death during pregnancy in the whole period. The figures for miscarriages are, of course, not so large as they would be if we were able to secure all the patients for their full term of pregnancy, but making due allowance for this fact, they still seem to be unusually small.

With regard to the direct benefit to the child, the birthweight is the easiest test to make, for whereas other tests may vary in different institutions, the scales are constant. The birthweight of the children during the full two and a half years has averaged from eight to ten ounces above that given by Dr. Williams in his book. This weight he gives as seven pounds; our babies have averaged seven pounds eight ounces, and during certain periods somewhat higher. In making out this figure, all premature cases and all twins and a set of triplets have been included.

The average length of time the patients have been under our care has been between two and three months, but we have often had them

much longer—six, seven and eight months—and we prefer to have them come to us as early as possible. The cost of this care has only been $2.50 to $3.00 per patient. This is a small sum, and we encourage the women to pay it themselves, whenever they can, as we believe that a self-respecting community is much better than a dependent one, and that a self-supporting work is much more valuable than one carried on by charity, for it not only stands on its own merits, but there is also no limit to its power of growth. As the importance of the work is better appreciated, we find the patients more and more ready to pay for it.

The Boston Lying-in Hospital, as Dr. Huntington has just said, has recently started a clinic for its pregnant patients, and on November first added to it a visiting nurse, that they may now themselves care for the patients hitherto cared for by our Committee. This is a most gratifying proof of the value of the work in the eyes of those best fitted to judge.

We are now eager to work with doctors in their private practice, for we believe that in all cases except where patients are able to pay for constant medical visits, the supervision of pregnancy should be carried on by a trained nurse under a doctor. It could be as well done in this way as by the physician himself, and with much greater economy, as he would be called in only when the patient's condition was unsatisfactory. This would release him for more important work and would simply be carrying the principle of business efficiency into medicine—where it equally belongs. We are now working with the Instructive District Nursing Association and hope with their aid gradually to bring this about.

The last and perhaps the most important point which I want to bring before this meeting is that the Committee has a nurse, a woman of large experience, whose salary they pay, whom they are ready to send anywhere to help any organization to establish this work, and they will be very glad if anyone will let them know if they can help in this or in any other way to bring about prenatal care for our future citizens. The time cannot come too soon when every woman shall have care during her pregnancy as surely as she now secures it at the time of her confinement.

THE PROBLEM OF MIDWIFERY FROM THE STANDPOINT OF ADMINISTRATION

MARSHALL LANGTON PRICE, M. D., Baltimore, Md.

The practice of midwifery is a complex problem of great antiquity closely bound by many ties to many social customs and prejudices. Midwives as a class were recognized in history from early Egyptian times. In the history of the European continent the practice of midwifery by the medical profession did not begin until the middle of the sixteenth century. In the East the practice is exclusively confined to women for social and religious reasons.

The history of all reforms will show the difficulty of displacing old established occupations and social customs by legislation or other restrictions, unless a certain amount of time is allowed for the establishment of the new custom and the displacement of the old and unless such restrictions are brought to bear upon actual rather than ideal conditions.

It is for this reason that I have felt that I could do more actual service to this Section by confining my remarks almost exclusively to the administrative side of the problem.

The individuals charged with the administration of statutes and regulations designed to bring about far-reaching social reforms should be and often are in a position to know better how far it is wise, just and expedient to carry restrictive measures, in the correction of social evils and abuses.

In order to elucidate the problem from this standpoint I will consider midwifery under the following headings:—

1. Necessity for the regulation of midwifery.
2. The regulation, in general, of professions, trades and occupations from the legal standpoint.
3. The regulation of midwifery as an occupation.
4. Methods of regulating midwifery.

   a. By direct abolition.
   b. By restrictive measures carried to indirect abolition.
   c. By educational restriction.
   d. By registration and supervision.

1. *Necessity for the Regulation of Midwifery.*

It is clearly necessary for the restriction of midwifery as for that of any other trade or occupation which it is designed to regulate in American communities, that the necessity for

regulation be not only clearly understood, but more or less obvious, as otherwise all attempts at regulation by statute will be predestined to fail.

The following extract from a circular letter addressed to local registrars in the State of Maryland will point out some of the reasons why the practice of midwifery should be subject to legal regulation:—

"The necessity of regulating the practice of midwifery is recognized by physicians, social workers and all persons who have studied or are acquainted with the conditions under which midwifery is practiced. The practice of midwives determines the life or death of the mother or her future health, the life or death of the child and whether it shall be a self-supporting citizen or a sightless charge upon the State. No other class in this State is allowed to deal with problems involving disease, blindness or death with so little regulation as are midwives. The least protection the State can afford to poor and worthy mothers and their children is to see that midwives * * * perform their duties as imposed upon them by the statutes."

These reasons would appear to be sufficient alone to establish a case of obvious necessity for regulation. Certainly the necessity for regulation of midwifery is as great as that for the regulation of plumbing, pharmacy, barbering, veterinary surgery or even dentistry, all of which occupations have been placed under legislative restriction in various States.

2. *Regulation of Professions, Trades and Occupations From the Legal Standpoint.*

The practice of midwifery, in common with that of other trades, professions and occupations in which there is a direct relation to the public health and safety, may be subjected to restrictions of any reasonable degree of severity necessary for the safeguarding of the public.

The following quotation from the work of Parker & Worthington on "Public Health and Safety" will make clear both the limitations and extent of the power of the State to regulate or restrict these classes of occupations:—

"No proposition is now more firmly settled than that it is one of the fundamental rights and privileges of every citizen to follow such lawful industrial pursuits not injurious to the community, as he may choose,* but the exercise and enjoyment

*Rapallo, J., People v. Marx, 99 New York, 377.
Corfield v. Coryell, 4 Washington, c. c. 380.
Butchers' Union Co. v. Crescent City Co., 111 U. S., 746.
Crowley v. Christensen, 137 U. S., 86.

of all rights are subject to such reasonable conditions as may be deemed by the governing authorities essential to the health, safety and morals of the community."

3. *The Regulation of Midwifery As an Occupation.*

From the legal standpoint the practice of midwifery may be regarded as an occupation, which, if not under proper regulation, may be dangerous, either to the public health or to the public safety. It is true that in this particular occupation the distinction is somewhat artificial.

The dangers to which individual mothers and infants may be exposed through the treatment of careless or unskilled persons would certainly require the services of a skilled person, subject to the same restrictions in degree that the State has found necessary to throw about other skilled occupations in the interest of the public safety. On the other hand, serious danger to the public health may arise through the frequency with which dirty and unclean midwives may carry infection from one patient to another, or from one infant to another, as the case may be. As a general rule, however, the practice of midwifery affects individuals or small groups of individuals, while the practice of medicine or other professions licensed to handle infectious diseases affects the general public as a whole, or, at any rate, a much larger class of the community.

According to Parker & Worthington, there can be no doubt of the validity of legislation regulating the practice of medicine, surgery, dentistry and pharmacy, "so far as it requires of persons desiring to practice these professions that they shall possess certain reasonable qualifications and that they shall register their names in a public office and take out licenses."*

There can be no doubt. moreover, it appears to me, that the reasons under which such professions as dentistry and pharmacy are regulated by statute apply with equal or greater force to the practice of midwifery.

4. *Methods of Regulating Midwifery.*

The methods of regulating midwifery may be divided into four classes, namely, direct abolition, restrictive measures carried to indirect abolition, educational restriction, and, finally, registration and supervision. We might add to this number

*The rule requiring physicians to possess learning and skill is a very ancient one. Bonhan's case, 8 Coke, 227; College of Physicians, 1 Ld. Reyne, 42.

a fifth class, namely, "no regulation." As a matter of fact, in England, up to 1902, there was no regulation of any kind and the present act of Parliament does not apply to Scotland and Ireland. In practically every European country the practice of midwifery has been regulated since the latter part of the nineteenth century.

a. Regulation by Direct Abolition.

There is no doubt that many of those who have given study to the midwifery problem believe that the interests of the people would be best preserved by the immediate and direct abolition of midwives. It is questionable whether the powers of the legislature in the several States would extend so far under the American Constitution. There is no doubt that such a plan, if constitutional, would have much to commend it, for it is undoubtedly best for any women in childbirth to be attended by a well-educated and trained physician.

Assuming the legislature to have the power in any State to immediately abolish the practice of midwifery, what would be the practical results?

In the first place, the law could not require a parturiant woman to provide herself with proper attendance, nor could it forbid her the assistance of friends and neighbors of her own sex. The restrictions of the law could necessarily apply only to midwives who are habitually engaged in the practice of the profession for hire. It would be necessary for the State to supply a sufficient number of trained physicians to replace the abolished profession, and even here there would be a great number of racial and personal prejudices to overcome. Possibly this could be met in part by the formation of a large corps of women physicians.

Extensive and radical changes would be necessary, however, along, not only one, but several lines, if a movement of this kind was to be successful.

It may be said, however, that the difficulties of furnishing medical attendance in place of more or less unskilled midwives are becoming financial and circumstantial rather than social. Financial difficulties need not apply so much in the cities where there are well-equipped lying-in hospitals, and in addition to this, an out-patient service, supplied by the hospitals and universities free of charge, of much superior quality to that furnished by the ordinary midwives. Circumstantial difficulties, however, must often be met in rural communities where medical attendance may not be available.

b. Regulation by Restrictive Measures Carried to Indirect Abolition.

It is quite possible by strict educational requirement, by imposing certain qualifications as to experience and training, and in other ways, to restrict the practice of midwifery to such a degree as to amount to practical abolition. Such a method is necessarily more slow than direct abolition. It can be carried out, however, according to the forms of law, it permits sufficient time for readjustment and it does not involve the imposition of great difficulty or hardship upon any class in the community. It, moreover, leaves a large measure of discretion to the administrative officer as to how far it is possible or advisable to go. This method of regulation, moreover, may stop at any point short of abolition.

c. Regulation by Educational Restriction.

This method differs in degree rather than in kind from the method just described. Its purposes, generally speaking, are not to disturb the existing body of midwives, but to gradually replace them by means of progressively elevated requirements and standards, by a smaller body of well-trained, efficient women. This method may be also carried in the course of years to the point of practical abolition.

The time of replacing this class of midwives by a body of well-trained women would not be as long as would be supposed, because the majority of women engaged in this occupation are well along in years and in the course of a short time will have dropped from the ranks, either by death or retirement.

d. Regulation by Registration and Supervision.

The primary object of registration is to bring the class registered under the supervision of competent officials, so that the acts of a body of individuals admittedly untrained may be subjected to some measure of supervision.

Thus in many States the law requires midwives to give notice to the local Health Officer of any cases of fever of a woman in childbed and to refrain from attending any other women until given written permission to do so. Similar laws also require notification to be given of any reddening or discharging from the eyes of the new-born infants.

For the effective execution of laws of this character, registration is very essential. Registration also permits the circularization of midwives to give them such advice as may best assist the mothers and infants under their care.

REGISTRATION AND PRACTICE OF MIDWIFERY

FREDERIC V. BEITLER, M. D., Baltimore, Maryland

The excellent paper by Dr. Price discusses the midwifery problem from several points. The two phases of the problem which stand out prominently in his paper are, first, the necessity for the registration of midwives, and, second, the methods for regulating their practice. In rural districts, to these we might add another point for discussion, namely, the necessity for the existence and continuance of the practice of midwifery.

These major points can be discussed in a general way for the country at large, but when the problem narrows itself to a particular State, a number of considerations that might be called general would have to be managed in an entirely different manner than one would suppose. Very often the various sections of a single State, in so far as regulation and administration are concerned, would have to be treated as such, more depending on the mode of administration than the regulations involved. The conditions in any division or community of a State which determine the manner in which this problem should be handled are—

a. Population.
b. Number of physicians per thousand of population.
c. Facilities for transportation.
d. Financial conditions in the community.

To discuss briefly the above factors, the number of individuals in any State or part of a State to be considered would probably have no great bearing on the question if factors *b*, *c* and *d* were in proper ratio, but if we have a large proportion of a stated population composed of negroes or a foreign element, especially Germans, Bohemians and Lithuanians, the problem and manner of dealing with it would be much more difficult and probably more extensive. The number of physicians per thousand population would probably have very little bearing upon the population in large cities, but in rural districts where with one physician per thousand population, there is a question whether or not he would not have to at times, in a great many families, depend upon the services of someone who has had some experience in obstetrics, to either aid him or assist the patient until he can be present himself. Again, the factor of transportation facilities and the miles of traversable roads presents itself in rural communities. Without doubt there are times when physicians cannot traverse a certain portion of

roads except, perhaps, on horseback, and distances being so great that a considerable period of time would elapse before word could be brought to the physician, here, again, we would see the necessity of having someone to be able to assist the patient until the arrival of a physician. The problem is probably taken care of as much by the financial condition of a community as by any other one condition which presents itself. In counties and communities which are impoverished, for one reason or other, we find the percentage of midwives rising, while in counties which are prosperous, we find very few midwives. To illustrate this point, I will give the figures in Anne Arundel County and Frederick County. In Anne Arundel County a fair proportion of the population is colored and a large number of the white residents have a very small income. In this county there are 119 midwives, while in Frederick County, which might be classified as a very prosperous one, the population consists of fewer colored people, and here we find no more than 10 midwives. The population of Frederick County exceeds that of Anne Arundel County by over 13,000.

Through the efforts of Dr. Mary Sherwood and under the direction of the State Department of Health, the Committee on Midwifery of the American Society for the Study and Prevention of Infant Mortality was able to make a thorough study of the midwives in Anne Arundel County, Maryland, during July and August, 1911. This study was made financially possible by the Maryland Association for the Prevention of Blindness. This county was selected because of its proximity to the City of Baltimore and the fact that we had knowledge of a large number of midwives practicing therein. We also felt as if we could get quicker and better results and transportation facilities into the county to several points, as they could be made by an electric railway, an advantage which could not be obtained in any other county which we could select for the investigation.

Anne Arundel County is situated on the western shore of the Chesapeake, just south of Baltimore, is about 36 or 37 miles from north to south and from 20 to 23 miles from east to west. This county consists for the most part of flat and rolling land with a thick layer of sandy soil, and except where cleared for farming, is pretty thickly wooded. The majority of the population are occupied in farming, while a certain proportion are fishermen, and still others find employment in canning factories, etc. There is but one large manufacturing plant in this county and employs but a small proportion of the male population. The total population is 39,553; of this, 25,396 are white

and 14,157 are colored. There are 53 physicians in this county, situated in towns and villages. Besides two electric lines, which run half way through the county from north to south, there are no other means of transportation except by horse and carriage. In heavy weather, it is almost impossible to move rapidly with a team. There are few improved roads through the county, most of them being composed of a bed of sand, which makes hard pulling. These conditions are true in a number of counties in this State, and we feel that the same deductions made from this investigation of midwives in Anne Arundel County will hold true for most of the rural counties in which the factor of population, number of physicians, transportation facilities and financial conditions are the same.

To take up the result of this investigation, we find the homes of the majority of midwives are some distance from the centers in which physicians live, the average distance being 3 miles, a large proportion being from 4 to 5 and 6 miles from physicians. While a few of them live along the car lines and the only facility for transportation is driving, it is evident from the fact that they live no closer to physicians, that they have probably sought communities where medical assistance was hard to obtain, and in which they would themselves find employment.

Of these midwives, 5 were foreigners, 17 white American born and 95 negroes. Their ages ranged from 30 to 90 years, the maximum number lying in the age period between 50 and 60 years. These age periods cannot be considered any better than approximated, since the negroes very seldom know their real age and feel that age adds dignity in the practice of midwifery. Their educational qualifications are far below the average, thirty-two being able to read, 10 to read and write and 77 not being able to either read or write. The majority of these 119 in number had no diplomas or certificates of training, while two white American-born women and two foreign women had diplomas from various institutions.

After the operation of the Midwifery Law and the apparent co-operation of the registrars and sub-registrars of Vital Statistics, there was a great surprise to find that while we had 34 registered midwives in this county, there remained 85 of which we had no knowledge.

The home conditions of the majority of midwives is what is termed good or fair, very few of them being termed bad. This means that their homes were reasonably clean and comfortable. Twenty-five of the total attended abnormal cases of labor. This was obtained from them by questions which would, in the

event of such practice, be given the investigator. A large number of them used no antiseptics and practically none knew of the significance of their use. The equipment used by one was fair. This was a foreign woman who had obtained a diploma while practicing in her native country. Thirty-one had equipment which was classed as bad; the remaining 87 had no equipment. Prophylactic measures for the prevention of opthalmia were used by 18 of the entire number. Seven out of the total of 18 using prophylactic measures were American women. One hundred and ten of these midwives attended the mother after birth, while 9 attended her at delivery and made no subsequent visits. Out of the entire number but one woman received patients at her home and two were suspected of criminal practice.

Looking over the situation, we find a large county with a large proportion of the population composed of negroes and a considerable proportion of whites who could not be classed as prosperous. The roads in general are not good, the homes are scattered, sometimes at great distances. In this county we have about 53 physicians and 119 midwives. The majority of the physicians are grouped in the towns, with the midwives distributed in the outlying districts. Again we find most of the prosperous citizens living in the towns in close proximity to medical services, with the less prosperous ones living in the outlying districts.

One can readily see the position of the average unprosperous citizen when he faces the problem of paying a physician, which would mean extra charges, and very often then not be able to bring a physician to the bedside in time to properly care for a mother. In most instances, for several reasons, among them the question of fees, a midwife; while perhaps not preferred to perform this duty, is selected by these families as a matter of necessity. She not only performs the duty of an accoucher, but subsequently for a period of a week or ten days takes care of the infant and does the work of a maid in the home. The greater percentage of all labors being normal ones, and perhaps 95 per cent of these in multiparae, the midwife and mother seems to experience very little difficulty.

Conditions of this kind have existed in these communities for years, the individuals are isolated in a manner, doing very little reading and having a certain degree of faith in the efficiency of the midwife.

Since July 1st, 1910, the State Board of Health has taken up the proper licensure and registration of these midwives,

with certain penalties for non-registration and a compulsory examination for all midwives entering the practice subsequent to that date. Our efforts in this county have been vigorous and the health officer of the county co-operating with the zest to be commended and receiving ample aid from all his sub-registrars. We had distributed in various districts of this county 14 representatives who sent us the names of all the midwives which they could obtain or which came under their notice. Although the majority of these could not read or write, a letter to them from the State Department of Health usually brought a note or letter to the registrar of the county asking to be properly licensed and registered. While the process of licensing and registering is rather complicated, they followed practically every detail, and all of them coming to our notice (34) have been properly licensed and registered. The year after the investigation took place, we find 85 midwives of whom we had absolutely no record. The omission of such a great number cannot always be attributed to neglect on the part of our representative in the district, but owing to the fact that a majority of these midwives can neither read nor write, they are ignorant of public notices and in most instances fill out no certificates of birth of the children which they have delivered, with the consequence that our sub-registrars do not know of their existence. It will be an easy matter to obtain licensure and registration of all midwives throughout this county after such a thorough investigation as has been carried out.

I have practically confined this discussion to this single county for the reason that it is the only one in the State in which we are thoroughly acquainted with the conditions. The management of these midwives after this investigation should be a comparatively simple matter, but in the event of new midwives taking the field and not being licensed and registered, we feel the necessity of employing regular inspectors to spend a portion of their time in each county, ferreting out all midwives practicing without proper license as well as other violators of the Midwifery Law. The fact that a midwife is licensed and registered means very little to her except that she feels as if she is protected in her practice by the State. She considers nothing besides criminal practice a violation of the law, and when she does not officiate in operative procedures, it is in a great measure through failure to obtain and consequent loss of her practice rather than fear of the law. Moreover, it is a hard matter to obtain the proper evidence to convict such persons, and we have never had an instance in a year and four months of execution of the Midwifery Law of an accusation

being brought against midwives by either a patient or a physician, (except a health officer).

If the proper means of regularly investigating this practice can be obtained in this one county at least, the ultimate end of the practice within a comparatively short time can be predicted. The law states that all midwives entering the practice subsequent to July 1, 1910, must successfully pass an examination prescribed by the State Board of Health. In an entire year there has been but one midwife entering the field in this county, and she has only assisted physicians, and she will be compelled to pass the examination before taking a case herself or accepting any fees.

SCHOOLS FOR MIDWIVES

By S. JOSEPHINE BAKER, M. D., Director of Child Hygiene, Department of Health, New York City

The practice of midwifery dates back to the beginning of human life in this world. At this supreme moment of motherhood it is probable that some assistance has always been required and given. Its history runs parallel with the history of the people, and its functions antedate any record we have of medicine as an applied science. To deny its right to exist as a calling is to take issue with the eternal verities of life. The only points upon which we may argue are the training required for its safe and lawful practice, and the essential fitness of those who follow this calling requisite for the safeguarding of the mother and child.

That Socrates' mother was a midwife bears testimony to the honorable nature of such a profession at a time when civilization in one of its highest forms was at its summit.

With the advances that medicine has made we are all familiar. Midwifery as one of its component parts has achieved a high type of efficiency, but the midwife, per se, has been left behind in the march of progress and, untrained and unsupervised, has absorbed a large part of the work of caring for childbirth, without being regarded as a serious competitor to the trained physician, or, indeed, as of any particular importance as a factor in obstetrical practice. The evil has been insidious. Europe was aroused to the danger of the situation some twenty years ago. Here in the United States we have either carried on a mild sort of supervision of midwives, ignored them completely, or, in a few instances, passed mandatory legislation officially stamping them as non-existent, and then neglected to make any provision to see that they remained so.

At the present time ignoring the midwife is criminal culpability, but denying her existence is a state of sublime ignorance that bears the elements of humor, but is essentially tragic in its consequences.

In the large cities of this country we must face the fact that the midwife is a permanent part of our social structure. To a lesser degree this fact is equally true in smaller com-

munities and rural districts. Our vast alien population maintains the traditions of its home countries in matters pertaining to its personal habits, and the midwife is an intrenched institution in those parts of Europe which are furnishing us with the larger class of our immigrants. From a study of a large number of cases in New York City I have found that the average cost of a midwife's services is eight dollars. This amount almost universally includes attendance during the confinement, daily visits for at least ten days thereafter, nursing care (crude though it may be) and many housewifely duties, including sometimes the preparation of meals and general care of the household. Contrast this with the service rendered by the average physician for the same amount of money, and it is easy to see one of the main reasons why the midwife will continue to be employed, whether or not the law recognizes her existence.

The dangers of the unsupervised practice of the untrained midwife are matters of elementary knowledge and need not be recounted. One point, however, merits attention,—that is, the so-called criminal practice which has been widely discussed, and which by many investigators is considered the most serious indictment of the midwife as she exists today. This criminal practice, which mainly is concerned with the production of abortions, bears the same relation to the practice of midwifery by midwives as it does to the practice of medicine by physicians. In either case it is the illegal practice of medicine, amenable to laws which are in effect in practically all States, and directed toward the prohibition of this practice, irrespective of whether the offender be physician, midwife or layman. That a midwife may be guilty of the illegal practice of medicine is no more an indictment against her legitimate sphere of practice than it is an indictment of the practice of medicine if a physician be found guilty of the same offense. That there may be more danger to be feared in the case of the midwife is true, but the legal status of the crime is in no sense altered. While medical examining boards and boards of health should refuse to issue a license to practice to any midwife found guilty of this crime, and should revoke any license already in effect for the same cause, the action should be equally drastic in the case of any member of the medical profession under like circumstances.

The methods of control of midwives in the United States are remarkable mainly for their deficiency. Most of the European countries have met the situation in a much more able manner, and the best midwives in this country are those who have been

graduated from European schools. In this country, in the few instances where we have been aroused to the necessity for action, we have remained content to pass a more or less drastic law requiring an examination before a license to practice is issued, or in many cases prescribing certain regulations of the practice with no machinery for enforcement, and no provision for further supervision to see that the law is obeyed. Europe has struck the keynote by not only recognizing that preliminary education and training is essential, but in most instances providing facilities for procuring it, but even here the situation is not wholly satisfactory.

Accurate data regarding this matter have been difficult to procure, as the work is in a transition period in many countries, and literature on the subject is meagre and conflicting. In general the situation is as follows:

None of the European countries have laws which regulate midwifery practice throughout each respective country. The authorities complain of lack of uniformity. Apparently the situation is better in Germany than in the other European countries, but here, too, the regulations are better in some provinces (Saxony, for example) than in others. Statements in regard to the conditions as usually found are often misleading, as they apply only to certain cities or districts.

Germany: No uniform regulations exist for the empire. A midwife can practice only in the State in which she has passed her examination. If she goes to another State it is necessary for her to take another examination.

A Prussian law of May 10, 1908, regulates the fees of midwives. At present there is a strong movement toward reform, and an attempt is being made to

1. Improve the social standing of midwives;
2. Appoint a definite number to practice in each district, based upon the number of inhabitants;
3. Induce well-educated women to practice midwifery;
4. Insure against sickness and old age.

Austria: The conditions are similar to those of Germany, but not so favorable.

Switzerland: There are no uniform regulations for the entire country. Each of the 23 cantons has its own.

France: Here also there are no general regulations holding good for the entire country. There are, however, two classes of midwives licensed,—those who may practice anywhere in France (these have a more complete training), and those who are allowed to practice only in certain districts, and who have had a more elementary previous education and training.

England: By Act of Parliament, after March 31, 1910, no uncertified midwife can practice. The provisions of this Act are carried out by the Central Midwives Board. This Board selects subjects for study, holds examinations, and keeps a record of all midwives. The Board regulates the practice of midwives, sits as a court to hear charges preferred against these women, and supervises them by visits of an inspector.

NUMBER OF MIDWIVES

The following table of the number of midwives in the various countries has been compiled from Prinzing and other sources:

Country	No. of midwives	Year	No. of midwives to 10,000 inhabitants	Average No. births annually each midwife
Germany	37,025	1898	6.8	55
(Prussia)	20,878	1907	5.7	63
Austria	20,000	1909	7.3	51
Switzerland	3,305	1903	10.1	29
Norway	.....	....	5.5	53
France	.....	....	3.4	67
England	27,238	(registered 1909)	7.3	38
Italy	15,000	(active practice)	4.3	81
Russia	14,000	....	.9	550

NUMBER OF INSTITUTIONS AND NUMBER OF PUPILS

Germany: In 1908, 43 institutions for training midwives. Of these, 27 in Prussia, 4 in Bavaria, 3 in Baden, 2 each in Saxony, Hessen and Thuringen; the rest scattered, one in each of the remaining provinces.

Prussia: 1907-1908, 27 institutions, with 925 pupils.

Netherlands: Amsterdam and Rotterdam, 30 pupils annually.

Paris: 76 pupils; 35 two-year and 41 one-year courses.

INCOME OF MIDWIVES

	Average fee Normal case	Average annual income
Germany	$ .50—$4.00	$75—$100
Austria	....— 2.00	60— 75
Switzerland	....—6.00	...— 80
Russia	....—	50— 75
England	1.00— 4.00	

TRAINING

(Previous to entrance to schools)

The requirements for admission to the schools throughout Europe vary greatly, but generally include an age limit, good health, moral character and a definite previous education.

Prussia: The applicant must be healthy, between 20 and 30 years of age, of good character, must not have had an illegitimate child or be pregnant, and must have had an elementary education including reading, writing and simple arithmetic.

Russia: No definite requirements can be ascertained, but investigation has shown that sixty per cent of the midwives have attended public schools.

Netherlands: An age limit of between 20 and 26 years is required.

England: The applicant must be at least 21 years of age and present vouchers of good character. An elementary education, including reading and writing, is required.

France: Age limit of 19 to 35 years. Applicant must not be pregnant, and must have preliminary education to include reading, writing and arithmetic.

PROFESSIONAL TRAINING

Prussia: An average of nine months. May vary from six months to one year.

France: One or two years. In Paris the second year is optional, but from 25 to 50 per cent take the advanced course.

Italy: At the universities two or three years, but this often includes the time spent in giving the midwives an elementary education, as many applicants cannot read or write.

Switzerland: At the schools and universities from six months to one year.

Japan: At university and private institutions one year.

Netherlands: At Amsterdam and Rotterdam two years. Must conduct at least ten cases of labor, and pass an examination at the end of the course.

Russia (some parts): Three years, including general education.

Belgium: Two years.

Scandinavia: One year.

England: Six to nine months. The midwife must deliver and nurse at least twenty cases of labor during her period of training.

In all countries the method of instruction is similar,—partly didactic and partly practical.

EXAMINATIONS

Germany: Oral and practical. The certificate gives only the right to practice in the State in which the examination takes place.

France: Oral and written.

Japan: Examination is held before the chief of the training school, a public medical officer and two obstetricians.

England: Oral and written before the Central Midwives Board.

Prussia: All midwives are expected to be examined once in three years. This requirement, however, is not closely followed.

COST OF TRAINING

Germany: From $65 to $150.

France: The two years' course costs approximately $200.

England: From $100 to $150.

SUPERVISION

Germany, Austria and *England* have special supervising inspectors, a definite number of midwives being assigned to each. Midwives are required to keep a day book with records of cases attended, and deaths. The equipment is regularly inspected.

In order to determine the existing conditions in regard to the control of the practice of midwifery in this country, the following questions were sent to the State Board of Health in every State:

1. Is the practice of midwives in your State regulated? If so, will you kindly send me a copy or abstract of the law?
2. How many midwives are practicing in your State?
3. How many births are reported annually by midwives?
4. What per cent of the total births reported does this represent?
5. Are schools for midwives under special regulation?

(a) If so, what is the method of control?

(b) What public department exercises supervision over them?

(c) How long is the course in these schools?

(d) What is the curriculum?

(e) How many such schools are there in your State?

6. If you have any literature regarding midwives, will you kindly enclose it?

Thirty-five sets of answers were received. (See Table I.) Thirteen States have laws regulating the practice of midwives, yet only six knew the number of midwives in the State, and only one could state the number of births reported by them. Any system of supervision or enforcement of the law could not be determined in any State except as the matter was delegated to the local authorities of cities or towns. In two States the presence of midwives is not officially recognized, the law requiring that any person must qualify as a Doctor of Medicine in order to practice midwifery.

Similar letters of inquiry were sent to the most prominent cities in each State. Twenty-eight replies were received. Eleven were acting under the State law, while four had local ordinances or a State law applying only to the city in question.

In only two States—Ohio and Utah—was it conceded that any schools for midwives existed,—Ohio having one under no supervision, and Utah two, under State supervision, with a required six months' course of study, yet with the curriculum unknown to the governing authorities of the cities. Trenton, New Jersey, was the only city where the number of schools was definitely stated, and these were not supervised. Milwaukee, Wisconsin, stated that the schools were under supervision, but gave no information as to their number or method of control. (See Tables I and II.) The lack of knowledge of conditions and the inadequacy of control are lamentable. It is evident that a widespread campaign of education is urgently needed in this direction.

In two cities a definite beginning has been made toward the solution of the problem. In Philadelphia, Dr. Newmayer, the efficient chief of the Bureau of Child Hygiene of the Bureau of Public Health, not only personally examines each applicant for a license, but refers each applicant who is deficient in training to the Philadelphia Hospital, where she is instructed in the essentials of the care of cases of normal childbirth. New York City is entitled to the honor of having established the first School for Midwives in the United States under municipal control. During the summer of 1911, Dr. John Winters Brannan, President of Bellevue and Allied Hospitals of New York, obtained from the city a special appropriation for this purpose, and in July this school was officially opened.

It is situated in a separate building, devoted exclusively to that work, and now has accommodations for eight patients,

with a possibility of expansion within the near future. The present class of midwives numbers eight; others have entered from time to time, but have left the school either because they were not fitted for the work, or because they refused to take so long a course. The length of the course has been placed at six months. The midwives live in the building all the time, observe each case that is received, and in turn they are allowed to deliver cases under the supervision of the house physician. A resident physician and a superintendent of nurses are in charge. Three lectures a week are delivered to the midwives by the resident physician. These lectures cover the elementary and practical points in the diagnosis of pregnancy, the management of normal labor, the diagnosis of abnormal conditions existing at labor, and the care of the mother and child during the puerperal period. The nurse in charge delivers three lectures weekly, covering somewhat the same subjects from the nursing point of view. These lectures are made as practical as possible, couched in simple language, and the cases observed by the midwives are used as subjects for description and demonstration.

This school is maintained as part of the nursing work at Bellevue Hospital, and is under the immediate direction of the Superintendent of Nurses. Special effort is made to train these midwives in the fundamental points of nursing of pregnant women, and special attention is directed towards the care of infants, the necessity of breast feeding, and the manner and methods of artificial infant feeding.

In the school the midwives prepare the meals, are responsible for the neatness and care of the house, take all care of the patients, as well as being in attendance at the confinement. The purpose is to provide a training which will include the housewifely duties, the essential methods of nursing, and the professional knowledge essential to the proper care of cases of normal labor.

Too much cannot be said in praise of this school. In its appointments and management it is eminently satisfactory. I am informed that it is proposed to develop the out-patient department as rapidly as possible, so that the women may have opportunity of confining women in their own homes, thus working under conditions which approximate those which will confront them when they start out as independent workers.

No special requirements for admission are maintained, but the applicant must be able to read and write, and must be of good moral character. No charge whatever is made for the course.

While this school is maintained by New York City, the Department of Health, which controls the practice of midwives in the city, under a special State law, has been unable to demand that all midwives shall be trained there before being allowed to practice, on account of its limited facilities. All women, however, who apply at the department for permits and who have not cared for the requisite twenty cases of childbirth are referred to the school for the necessary instruction. As soon as sufficient provision can be made to provide for the number of midwives in the city, this course preliminary to the granting of a permit to practice should be made compulsory.

As a further argument, if any is needed, for the establishment of proper schools for midwives, a survey of the situation in New York City may be used. The Department of Health, through the Division of Child Hygiene, supervises all midwives in the city, and requires that they obtain permits to practice. These permits are in force one year from the date of issuance, and must then be renewed. Before a permit is granted the midwife must submit evidence that she has attended at least twenty cases of childbirth; that she is of good moral character, and that she has never been convicted of illegal practice of medicine. A preliminary inspection of her home equipment and personal habits is then made. After the permit is issued, repeated inspections are made as nearly once a month as possible, to instruct her and to examine her bag and equipment. Infraction of any of the rules and regulations may be punished by the revocation of her permit. The use of silver nitrate solution in the eyes of the baby at the time of birth is insisted upon, and is furnished free of charge by the department. This form of supervision has been in effect for three years. So far as supervision can accomplish results, they have been satisfactory. There are at present 1,344 permits in force, and during 1910 the midwives reported 51,996 births, or 40 per cent of the total occurring in the city. In 1912 a special staff of five physicians and eight trained nurses have been provided to supervise this work. With this special staff it is believed that a higher standard of efficiency may be attained.

Of the total number of midwives, only 9.1 per cent were born in this country; 26.4 per cent are Italian, with Germany furnishing 23.1 per cent and Austria 20.6 per cent; 1,254, or 93.3 per cent, can read and write in their own language or in English, while 69 per cent have had a common school education; 1,085 presented a diploma from a school of midwifery when applying for a permit to practice; of these, 512, or 38 per cent, were from foreign schools, and showed evidence of a satisfac-

tory training; 573, or 42.6 per cent of the diplomas presented were from schools in the United States; 350 of these were from one school in New York City. It would seem from a study of these facts that the midwife herself has recognized the value of preliminary training when with no compulsion 80 per cent of the applicants have voluntarily availed themselves of such a course. The adequacy of the training received in this country is open to question, yet the cost of the course in the school furnishing the majority of the diplomas is $75.00, which must be an item of importance to many of these women. (See Table Table II.)

No amount of legal enactment for mere control after licensing and no amount of mere supervision, however faithfully carried out, will ever solve the midwife problem. If we are to meet and master the situation,—and the need of such a course is imperative—we must insist that every midwife receive an adequate professional training before she is allowed to practice, and we must provide the proper schools for this purpose.

Even with a satisfactory course of training, continued supervision will always be essential, and in presenting this paper for the discussion which the importance of the subject merits, our summary of the essential features of the adequate control of the practice of midwives must include:

1. *State laws on midwifery:*

(*a*) Defining the practice of midwives.

(*b*) Requiring a definite course of study at a registered midwifery school.

(*c*) Requiring the local health authorities to enforce the law.

(*d*) A license to practice required and obtained yearly from the local Board of Health.

(*e*) Continuous supervision of midwives' practice.

2. *Schools for midwives:*

(*a*) Under State control, maintained under a license and subject to inspection.

(*b*) Required curriculum—

(1) Six months' course.

(2) Instruction and practical demonstrations of management of normal labor.

(3) Diagnosis of abnormal presentations or positions and complications of labor.

(4) Nursing during pregnancy, confinement and puerperium.

(5) Infant hygiene and care.
(6) Infant feeding.
(7) The delivery and care of at least twenty normal cases of confinement.
(8) All teaching to be practical, with actual demonstration of methods.

In conclusion, I wish to record my appreciation of the valuable aid of Dr. Charles Herrman in the review of the situation existing in the various European countries.

MIDWIVES IN NEW YORK CITY

TABLE II

	Total	Per cent
No. permits	1,344	
Nationality:		
Austrian	278	20.6
Italian	355	26.4
German	311	23.1
Russian	206	15.3
United States	123	9.1
Norway-Sweden	18	1.3
England-Wales	18	1.3
Swiss	9	.7
French	13	1.0
Finnish	4	.3
Greek	2	.1
Turkish	3	.2
Holland	2	.1
Miscellaneous	2	.1
Education:		
Read and write	1,254	93.3
Cannot read or write	90	6.7
Common school	928	69.0
Diploma from—		
United States	573	42.6
Foreign	512	38.8
Austria	179	
Italy	163	
Germany	53	
Russia	83	
Norway-Sweden	10	
England-Wales	8	
Swiss	3	
France	5	
Finnish	3	
Greek	2	
Miscellaneous	3	
Total diplomas	1,085	

TABLE II (CONTINUED)

	Total	Per cent
United States diploma presented:		
Arrested	29	
Imprisoned or fined	1	(fined $50)
Condition of bag:		
Satisfactory	567	
Not satisfactory	6	
Condition of home:		
Clean	552	
Not clean	21	
Condition of person:		
Clean	566	
Not clean	7	
Foreign diploma presented:		
Arrested	9	
Imprisoned or fined	..	
Condition of bag:		
Satisfactory	504	
Not satisfactory	8	
Condition of home:		
Clean	504	
Not clean	8	
Condition of person:		
Clean	508	
Not clean	4	
No diploma presented:	259	19.3%
Arrested	5	
Imprisoned or fined	1	
Condition of bag:		
Satisfactory	252	
Not satisfactory	7	
Condition of home:		
Clean	248	
Not clean	11	
Condition of person:		
Clean	252	
Not clean	7	

DISCUSSION

Dr. Ira S. Wile, New York City: If discussion of the excellent paper of Dr. Baker means disagreement, I have very little to say. I believe, however, that it is desirable to strengthen her position in view of the attitude of those who regard the elimination of the midwives as the only solution of the problem.

We must recognize that the midwife does present a problem that has received all too little attention in this country. The New York Academy of Medicine in 1906, The New York State Medical Society, The Committee on Midwives of the Chicago Medical Society in 1908, The Erie County Medical Society, A Conference on the Prevention of Blindness held in New York 1911 are a few of the organizations that have gone on record as favoring "State legislation which shall provide

for the training, registration, regulation and control of women engaged in the practice of midwifery." From a questionnaire sent to the State Boards of Health, State provision for training of midwives is favored by 19 States, including Arizona, Connecticut, Florida, Idaho, Delaware, Illinois, Indiana, Louisiana, Minnesota, Mississippi, Montana, Pennsylvania, North Carolina, North Dakota, Rhode Island, South Dakota, Utah, Virginia, West Virginia, Wisconsin, Maine, Nebraska, and Ohio, oppose this, while 18 sent no answer. Massachusetts favors regulation or elimination. The balance of opinion apparently is gravitating toward education and regulation.

Much is said about the ignorance and incompetence of the midwife and the existence of this condition may not be denied. But it is manifestly unfair to criticise the lack of an educational standard which has never been established. When nurses were of the Sairey Gamp type elimination was not the cure. When apprenticeship was the open sesame to the practice of medicine and the average of competence was not high, elimination was not the cure. Education, training, regulation and control solved these problems just as they will solve the midwife problem. Establish an educational standard, provide sufficient facilities for giving the adequate training, secure the legislation essential to provide supervision and control and then raise the standard of the midwife so that no further fault may be found. Let us be fair to the midwives and to their patients. Let there be an evolution of this class of public servants and not a hasty attempt to check their possible development.

When so much stress is placed upon the ignorance of the midwives, it behooves us to remember that eleven States still have no provision in laws for the preliminary education of physicians. Twenty-eight States demand an educational equivalent of four years of the high school or higher. Obstetric training in the medical colleges is recognized as inadequate, but there is no voice raised to eliminate the doctor from the practice of midwifery. Dr. Hirst is at present circularizing the State Boards of Health to establish a standard of obstetrical experience for candidates for licensure, and the standard he suggests is the personal delivery of at least six women. In New York City the midwife is required to have had the personal care of twenty women before a permit is granted to her. The irregular practitioner of medicine is still permitted to be an obstetrician with an experience that is inferior to that possessed by more than half of the midwives. Let us be fair to the midwife, I say, and if she is below the ideal we have for her, though we have never crystallized that ideal into law, let us give her the opportunity to rise and educate herself under proper supervision. Then, as a further protection to society, let us arrange for the necessary supervision and control.

Dr. Van Peyma, Professor of Obstetrics at the University of Buffalo, who was active in securing the midwife law for Erie County, states: "The diagnostic ability of midwives is generally good, and in the case of many remarkably excellent. In this respect the average midwife is fully the equal of the average physician." He further states: "If we look at the matter fairly and broadly, considering the facts of asepsis, diagnosis, and general management on the one hand, and the question of time involved, artificial deliveries, lacerations, compensation, etc., on the other, the writer is not inclined to believe that the average woman on the East Side now employing a midwife would, on the whole, receive better attention and results if she were to employ physicians obtainable for double the fees paid to midwives—to say nothing of the duties of nurse to mother and child now furnished by the midwife." These remarks are based upon conditions in Buffalo where one-half of the births are reported by midwives and where the average fee paid to the midwife is $5.

Midwives will be a part of our social system as long as immigration exists and until the newcomers of today are thoroughly Americanized. The Mexicans in Arizona, Americans in North Carolina, the Italians, Swedes and Syrians in Massachusetts, the Hungarians, Bohemians, Germans, Italians, Slavs, Poles, Swedes and Finns in Ohio, the Negroes in Missouri make use of midwives and, along with the Russians and Austrians, give some idea as to the national basis of the problem and the degree of distribution that must be required of any educational reforms. That the difficulties arising from the midwife problem are not centered entirely in the city is evident from the fact that in Nebraska, Oregon, Utah and West Virginia, for example, the bulk of the midwives are busy in rural communities.

As Dr. Baker has said, nobody knows how many midwives there are in this country. The total number registered does not serve as an index of the total number at work. Connecticut has registered 127; Illinois, 1,396; Indiana, 175; Iowa, 40; Massachusetts, 150; Mississippi, 203; Ohio, 643; Pennsylvania, 433; Rhode Island, 15; Utah, 326; Virginia, 200. The figures presented, representing official State information, show only 3,708 midwives, and the 28 cities reported by Dr. Baker estimate the number of midwives as 3,360. In 21 cities 72,966 births were reported by midwives annually, according to Dr. Baker. The percentage of the total number of births reported by midwives varied from 5 per cent to 53 per cent in different cities.

Massachusetts presents an anomalous situation in not recognizing the midwives as legal practitioners, but accepting their signatures on notifications of birth. This is a false position. Educate the midwife and give her recognition. Increase her self-respect and arouse her pride in her work and its results. Give caste and dignity to midwifery and a more intelligent type of woman will enter the profession. Place the full measure of responsibility upon the midwives and treat them as

human beings endeavoring to fill a need expressed by the communities in which they live. Remove from them the cloud of suspicion that now exists. Establish their legal status upon an educational standard that may be attained in institutions under supervision and control by the proper authorities. If midwives are ignorant it is because we have permitted them to develop thus. We are to blame and they are not.

The criminal aspects of the midwife problem will be helped in so far as a more enlightened and trained set of midwives may be held to stricter account in the matter of licensure and will have more reason for adhering to the highest moral and legal standards. From this point of view the skirts of the medical profession are not entirely clean, nor can we hope to eliminate the abortionist by education or law.

That the training and education of midwives will lessen the mortality of mothers has already been demonstrated. For the fifteen years previous to the passage of the Midwives Act in England in 1902, the death rate from puerperal sepsis varied from 109 to 202 per million females living; in 1903 the rate dropped to 97 per million, and in 1907 was down to 87 per million. In Italy during 1887, when the government assumed control and gave government education, the death rate from puerperal fever was 87 per million females living; in 1890 it fell to 56, and in 1902 fell to 32 per million. In New York City the reported cases of death from puerperal sepsis occurred more frequently in the practice of physicians than from the work of the midwives.

Restricting the practice of the midwives to the delivery of normal cases requires a knowledge of diagnosis. The fact that 80 per cent of the midwives of New York City present diplomas from some sort of school of midwifery indicates a desire on the part of the majority to acquire an adequate training before entering upon this field of endeavor.

A midwife should be able to read and write the language of her native land at least, preferably, of course, English, that she may be able to make proper returns to the authorities and to read the official regulations. She should then have a course of training covering at least six months and involving practical study of the subject as the basis of the theoretical training. At least twenty cases should be under her personal care, although with effective supervision, that the rules of asepsis may be thoroughly ingrained. The graduates of schools of midwifery should be under the control of local or municipal authorities and should have their training in connection with hospitals and out-patient departments.

The educational standards might better be established by the State departments so that uniform standards might exist throughout the State.

The enforcement of these standards could be left to the various local departments of health. By this means the numerous schools of midwifery that are at present existent, without recognition, would come

under adequate control and their work would be supervised and be placed upon a higher plane of efficiency.

Let us train, supervise, and control the midwives and give them an opportunity to take a reputable position in their work, guaranteeing them protection in proportion to the protection that they give to their patients—the mothers who need and demand them.

Miss Carolyn C. Van Blarcom, New York City: Dr. Baker's paper and Dr. Wile's discussion were briefly reviewed by Miss Van Blarcom in the absence of the writers. Miss Van Blarcom explained that the recommendations and opinions expressed in Dr. Baker's paper were the result of several years' experience in grappling with the largest midwifery problem in this country. She observed that, although the elimination of midwives might be feasible in Massachusetts, it was believed to be entirely out of the question in New York City and State by all of those who had come in close contact and had made a serious study of the midwife problem. Supplementing doctors for midwives might be desirable from the standpoint of the physician, but she maintained that doctors did not offer services to poor mothers and babies which offset the services of a well-trained midwife; for the latter act as visiting nurse, counsellor and friend at this time. And, moreover, that although the American public might decide in favor of elimination, the foreign-born population would continue to employ, if not a midwife, the most likely "handiwoman" in the neighborhood.

As to midwives not having "made good" in Europe, Miss Van Blarcom regretted that the study of midwifery training and practice, which Dr. Emmons and Dr. Huntington had made in Germany, had not been pushed to those countries in which public health officials, obstetricians and others declared most emphatically the midwife had "made good," notably in Norway, Sweden, Denmark and England.

She stated that, according to the report of Dr. Arthur Newsholme, Medical Officer of Health of the Local Government Board of England, deaths among infants had dropped from 151 per thousand births in 1901, the year before the Midwives Act became a law, to 106 per thousand births in 1910, and, further, that such men as Dr. Newsholme, Sir Shirley Murphy, Sir Francis Champneys, and Dr. Hope, the well-known Health Officer in Liverpool, were in favor of training and controlling midwives as one measure in decreasing not only infant mortality but infant morbidity.

Dr. C. S. Bacon, Chicago: It is fortunate that in this country each State can work out its own solution of social and health problems. If Massachusetts can abolish midwives, the rest of the country can profit by her experience. I believe, however, that Miss Van Blarcom is right in her view of the midwife question in New York. Midwives will remain there and in Chicago and in many other American cities.

The medical profession and voluntary societies may resolve that they ought to be done away with, but there is no prospect of their disappearing.

Since they are here to stay, we should do what we can to improve midwife practice. It should be controlled and confined to normal cases. This is a complicated problem, but it must be met by those who are in charge of the public health administration of the municipalities and the States. Another thing that should be done is to get the best possible midwives. This involves the creation of midwife schools. The time is ripe for the establishment of good schools. Should they be connected with the medical schools? That is probably impractical. The proper place for a midwife school is in the State University. The university has a medical college, a dental college, a college of pharmacy, and should have as an independent department a college for midwives.

The qualifications for admission and the course of study are details. One thing, however, is important for the success of such a school, and that is that the teaching should not be confined to the teachers of the medical department of the university, if there be other medical schools in the State. All the medical profession should co-operate in the support of such a school.

If this association wishes to make a practical beginning in the solution of the midwife problem I believe the best step would be to encourage the president and trustees of the State universities to establish such schools. I believe that such suggestions would be welcomed by the universities and would lead to prompt results.

REPORTS OF SUB-COMMITTEES

*NEW ENGLAND

The New England Sub-committee on Midwifery has undertaken to investigate as far as possible the midwives practicing in the cities of the New England States. As there has been no money for any paid investigator, the work has been done by the sub-committee members themselves, who have given what time they could to the investigation, and present the following facts:—

Maine—Sub-committee member, Dr. Fred. P. Webster, Portland, reports that, according to the Secretary of the State Board of Health, there are but few midwives practicing in Maine, and that these are not registered nor investigated by the State. Inquiries made of the City Clerks and Boards of Health of Augusta, Bangor, Biddeford and Lewiston received no answers. In Portland, Dr. Webster found two midwives only, both Italians, over 50, illiterate and without training. A Polish "Friend" and a Hebrew "Midwife" are suspected of practicing among the poorest of these nationalities, but do not report births.

New Hampshire—Sub-committee member, Dr. H. W. M. Bennett, Manchester, has sent in no report.

Vermont—Sub-committee member, Miss Charlotte Macleod, Brattleboro, reports that only one reply was received to the letters and cards sent out by her, and that was a letter from Proctor, saying that there were no midwives practicing in that city. The Secretary of the State Board of Health also sent a letter, saying there were no professional midwives in the State.

Massachusetts—Sub-committee members, Dr. Robert L. DeNormandie, Dr. A. B. Emmons, 2nd, Mr. Walter Kruesi, Dr. William Palmer Lucas and Mrs. William Lowell Putnam, of Boston, and Dr. Charles S. Millet, of Brockton, report that two associations in Massachusetts, namely:—The Women's Municipal League Committee on Infant Mortality and the State Commission for the Blind—have recently investigated the midwives practicing in 10 to 15 typical cities of Massachusetts and that a tabulation of the facts gathered by their investigators is at present under way. An extension of the investigation in other cities of Massachusetts has been started under the direction of Dr. Millet, but sufficient work has been done thus far to merely report progress.

Rhode Island—Sub-committee member, Ellen A. Stone, Providence, reports that there are 29 midwives practicing in Providence, 3 in Newport, 3 in Pawtucket, with the number in Woonsocket and Cranston

*See tables, pages 252-255.

not yet determined. These 34 midwives have all been personally interviewed, and all degrees of intelligence, training and cleanliness found, as the accompanying tables show. They are not recognized by any State statute, save the clause stating that physicians and midwives are requested to report all births. Hence they are not registered or supervised. During the past year the Superintendent of Health of Providence has employed a nurse to visit all infants delivered by midwives as soon as possible after the birth report is received.

Connecticut—Sub-committee member, Dr. Walter G. Murphy, Hartford, reports that he could not interest any one to undertake the investigation, and has been unable to make any investigation himself.

Respectfully submitted,

Ellen A. Stone, M. D.,
Chairman New England Sub-committee,
Providence, R. I.

VIRGINIA

In dealing with the question of midwives for this section I shall confine my remarks at present to those who themselves practice in the capacity of midwife and not under the general supervision of a physician.

In this State midwives are confined almost entirely to the negro race, although in recent years the number of white nurses practicing among the foreigners is, of course, increasing, because of the well-known desire of certain of the foreign element to have a midwife rather than a physician attend them in confinement. A vast majority of these are, of course, illiterate, superstitious individuals, who have gone into the work without training, or, in the case of a few of the white nurses, have attended a limited number of confinements with some physician, and on this meager experience have launched out for themselves.

Speaking of the negroes, I would say that their illiteracy is appalling, their cupidity is marked, and they at once take advantage of the superstition of their race and place around themselves a halo of knowledge which is unwarranted and yet serves in the capacity of a fetich to the poor and ignorant whom they serve. The general rule is for one of these creatures to take a case of confinement for the sum of five dollars, which includes actual delivery, attending to the baby until the mother is able to be up (which, in many instances, is in four or five days), doing all the cooking, washing, and ironing for the family, and, as a general rule, keeping the baby conveniently doped to prevent its dis-

turbing their own quiet slumbers. They are usually, however, gentle and kind hearted, and do a great deal more than the money which they receive warrants. Their equipment consists, as a rule, of a small hand satchel, usually torn and repaired with thread; a bodkin, which may or may not be rusty, which is used for the rupture of the membranes; a piece of dirty string, with which to ligate the cord; a piece of scorched linen to place around the cord; and a quantity of dirty lard, which is used as necessity requires, either on the stump of the cord or for inserting in handful lots into the parturient canal for the purpose of facilitating labor. In addition to this, they possess a pair of dirty hands which are practically never washed, and with which they make frequent and prolonged digital examinations of the patient. Why there is not more sepsis among these cases is hard for us to understand, for these women practically never call to their aid the services of a physician, except when, in their own language, "The child is growed to the ribs," which means to them any dystocia. How we are to educate these women is difficult to see. I am merely beginning to outline the conditions as they exist in our State, and it is impossible at present for me to offer any further suggestion in the matter. I shall be glad, however, to continue my observations and report to you from time to time.

Respectfully yours,

L. T. Royster, M. D.

Chairman Virginia Sub-committee.

Norfolk, Va.

PERSONAL STATISTICS.

Nationality				Age in years							Civil state			Residence in America				Education				Training												Registered at Health Dept.		Advertised		Home conditions			Personal cleanliness		
																		Read and write		Speak English		Date				Place		Kind		By whom		Diploma													
				Less than 20	20-29	30-39	40-49	50-59	60-69	70 +	Single	Married	Widow	Less than 1	1-9	10-19	20 +	Yes	No	Yes	No	1900-1910	1890-1900	1880-1890	Before 1880	America	Foreign country	Practical	Theoretical	Physicians	Midwives	Foreign	American	None	Yes	No	Yes	No	Good	Fair	Bad	Good	Fair	Bad
Rhode Island	Providence	Italian, 22		..	2	5	5	6	4	..	..	17	5	1	6	7	8	13	9	13	9	3	5	10	4	7	15	22	8	14	12	6	2	14	..	..	11	11	6	10	6	9	7	6
		Hebrew, 3		..	..	..	1	1	1	..	..	1	2	..	..	..	3	2	1	3	..	..	..	1	2	..	3	3	2	3	..	2	..	1	..	..	3	..	1	1	1	1	1	1
		Portuguese, 2		..	..	..	1	..	1	..	..	1	1	..	..	1	1	..	2	2	..	..	..	2	..	..	2	2	..	..	2	..	..	2	..	..	..	2	1	..	1	..	1	1
		Polish, 1		..	..	1	..	..	..	..	..	1	..	..	1	..	..	1-R	..	..	1	1	..	..	..	..	1	1	1	1	..	1	..	..	..	..	..	1	1	..	..	1	..	..
		Negro, 1		..	..	..	..	..	1	..	..	..	1	..	..	..	1	..	1	1	..	No training													..	..	..	1	..	..	1	..	1	..
		Total, 29		..	2	6	7	7	7	..	..	20	9	1	7	8	13	16	13	19	10	4	..	13	6	7	21	28	11	18	14	9	2	17	..	..	14	15	9	11	9	11	10	8
	Newport	American, 1		..	..	..	..	1	..	..	..	1	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	1	1	..	..	..	1	..
		Norwegian, 1		..	..	..	..	1	..	..	..	1	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	1	1	..	..	1	..	..
		Scotch, 1		..	..	..	..	1	..	..	..	1	..	..	..	..	1	1	..	1	..	..	..	..	1	..	1	1	..	1	..	..	..	1	..	..	..	1	1	..	..	1	..	..
		Total, 3		..	..	..	..	3	..	..	..	3	..	..	..	..	3	3	..	3	..	..	..	..	1	..	..	1	3	..	3	..	..	..	3	..	..	..	3	3	..	..	2	1	..
	Pawtucket	English, 3		..	..	..	1	1	1	..	..	2	1	..	..	2	1	3	..	3	..	..	..	2	1	1	2	3	1	3	..	..	..	3	..	..	..	3	2	1	..	2	1	..
		Total, 3		..	..	..	1	1	1	..	..	2	1	..	..	2	1	3	..	3	..	..	..	2	1	1	2	3	1	3	..	..	..	3	..	..	..	3	2	1	..	2	1	..
Maine	Portland	Italian, 2		..	..	..	..	1	1	..	..	2	..	..	1	1	..	..	1	..	1	No training													..	..	..	..	..	..	1	..	..	2
		Total, 2		..	..	..	..	1	1	..	..	2	..	..	1	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2

TABLE II.

FACTS ABOUT PRACTICE.

Nationality				Length of pratice (yrs.)				Extent of practice			Amount of practice							Practice in foreign country		Procedure			Equipment and cleanliness of bag				Reporting births				Visits										Fee			Suspected of criminal practice	Cases of opthalmia neonatorum
											Cases in 1910									When engaged		Visits before confinement					By whom		How soon		Length		Number per day		Number of days										
				1 or less	1-9	10-19	20 +	Limited section	Whole city	Outside city	Under 20	20-49	50-79	80-99	100-124	125-150	151 +	Yes	No	Before 5th mo.	5th-9th mo.	At beginning of labor	Yes	No	Good	Bad	Not seen	None	Self	Relative or friend	Under 1 mo.	Over 1 mo.	Less than 1 hr.	1-2 hrs.	1	2	3	8	9	10	10-14	$5.00	$5.00-$10.00	$10.00 +		
Rhode Island	Providence	Italian,	22	1	5	3	13	16	6	6	10	4	2	1	1	1	3	12	10	..	12	21	13	9	10	5	4	4	7	15	22	..	12	10	1	16	4	13	4	1	3	11	9	1	1	6
		Hebrew,	3	..	..	..	3	..	1	2	..	2	..	1	..	..	..	3	..	..	3	3	2	1	3	..	..	..	2	1	3	..	..	2	2	1	..	3	..	..	..	..	1	2	..	3
		Portuguese,	2	..	..	1	1	..	..	2	..	2	..	..	..	..	..	..	2	..	1	2	1	1	..	..	..	2	..	2	2	..	1	1	2	..	..	2	..	..	..	2	..	..	..	..
		Polish,	1	..	1	..	..	..	1	..	1	..	..	..	..	..	..	1	..	..	..	1	..	1	1	..	..	..	..	1	1	..	..	1	..	1	..	..	1	..	..	..	..	1	..	..	..
		Negro,	1	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	1	..	1	..	..	1	..	..	..	1	1	..	Lives at house								..	..	..	..	..
		Total,	29	1	7	4	17	16	9	10	12	8	2	2	1	1	3	16	13	..	17	27	17	12	14	6	4	6	9	20	29	..	13	14	5	18	4	19	4	1	3	13	11	3	1	9
	Newport	American,	1	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..	1	..	1	..	1	..	1	..	..	..	1	..	1	..	..	1	1	..	..	..	..	1	..	..	..	1	..	..
		Norwegian,	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	1	..	1	..	1	..	..	..	1	..	1	..	..	1	..	1	..	..	..	1	..	..	..	1	1	1
		Scotch,	1	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	1	..	1	..	..	1	1	..	..	..	1	..	1	..	..	1	..	1	..	..	..	1	..	..	..	1	..	..
		Total,	3	..	..	..	2	1	2	..	1	2	..	..	..	..	..	..	3	..	3	..	2	1	3	..	..	..	3	..	3	..	..	3	1	2	..	..	1	2	..	..	..	3	1	1
	Pawtucket	English,	3	..	..	..	3	2	1	..	3	..	..	..	..	..	..	2	1	..	3	..	1	3	2	..	1	..	3	..	1	..	1	2	3	..	..	2	1	..	..	..	2	1	..	1
		Total,	3	..	..	..	3	2	1	..	3	..	..	..	..	..	..	2	1	..	3	..	1	3	2	..	1	..	3	..	1	..	1	2	3	..	..	2	1	..	..	..	2	1	..	1
Maine	Portland	Italian,	2	..	1	1	..	..	..	..	2	..	..	..	..	..	..	2	..	..	..	2	..	2	..	..	..	2	..	..	..	..	..	2	1	1	..	2	..	..	..	..	2	..	..	..
		Total,	2	..	1	1	..	..	..	..	2	..	..	..	..	..	..	2	..	..	..	2	..	2	..	..	..	2	..	..	..	..	..	2	1	1	..	2	..	..	..	..	2	..	..	..

TABLE III.

TREATMENT OF MOTHER.

| Nationalities | | | | During labor | | | |

TABLE IV.

Treatment of Baby.

| Nationalities | | |

SECTION ON CITY MILK SUPPLY

Friday, November 17, 10.30 A. M.

CHAIRMAN

EDWIN O. JORDAN, Ph. D., University of Chicago

SECRETARY

F. O. TONNEY, M. D., Director of Laboratories, Department of Health, Chicago

At the general session held Saturday morning, November 18, the chairman, Prof. Jordan, summarized the findings of this Section and presented the following resolutions from the Section:

I *Resolved*, That we recognize the danger to human beings and especially to children from the tubercle bacillus.

We therefore demand protection against this danger by the enactment and enforcement of laws requiring the tuberculin testing of all cows furnishing milk for human consumption.

*II *Resolved* That until such time as the tuberculin test of cattle is efficiently applied, we recommend the pasteurization of city milk supplies under municipal, State or national control.

III *Resolved* That market milk should be iced on the farm, during transportation, in milk depots and in milk wagons, during summer weather.

Resolutions I and III were adopted by the Association. Resolution II on pasteurization was referred to the Executive Committee.

Report of the Chairman:

The Chairman stated that the Section wished to call attention to the reality of the danger from bovine tuberculosis. This danger is especially great in children under five years of age. Recent work in New York by Dr. Park and his coadjutors showed that over 30 per cent of cases of tuberculosis in children were due to the bovine bacillus. If this ratio is maintained throughout the population there are about 300

*Resolution II. on Pasteurization was amended by the Executive Committee as follows:

Resolved, That until City and State Health Departments can better control the production, transportation, and marketing of milk, the adequate pasturization of milk be recommended under Municipal, State or Federal control.

Adopted by the committee as amended.

deaths of children annually in New York City due to tuberculous infection from bovine sources.

No formal resolution was presented on Infant Feeding.

The resolution on pasteurization caused some discussion. It was stated that even careful inspection does not constitute an absolute safeguard, but that for the bulk of city milk supplies, under present conditions in this country, pasteurization is necessary to protect the consumer. It is known that raw milk containing tubercle bacilli is being sold today in Chicago and other American cities. Until the milk supply can be adequately controlled at its source and during transportation, pasteurization is considered necessary. In the debate that followed Dr. Goler suggested that inspectors of the process of pasteurization might be easily corrupted. Dr. Evans pointed out that this same objection applied to inspection of raw milk, or indeed to any similar municipal activity. The question was whether people preferred to drink living tubercle bacilli or dead ones. The resolution was referred by vote to the Executive Committee for further consideration.

THE PREVENTION OF TUBERCULOSIS IN CHILDREN BY GUARDING THE MILK SUPPLY

By MAZYCK P. RAVENEL, M. D., Director, Wisconsin State Hygienic Laboratory, Professor of Bacteriology University of Wisconsin, Madison, Wisconsin.

The question under discussion, it seems to me, will be best considered under three heads:

First, are bovine tubercle bacilli present in cow's milk?

Second, can they be recognized in human tissues?

Third, what proportion of cases of tuberculosis in human beings is due to the bovine tubercle bacillus?

Under the first head, I will simply quote a few of the best-known and most striking results obtained. Much work has been done on this subject, some of it open to criticism, but much of it recognized as being absolutely sound.

In Washington, D. C., of 223 samples of milk examined from 104 dairies, 6.72 per cent showed virulent bovine tuberculosis, and 11 per cent of the dairies furnished milk containing bovine tubercle bacilli.

Of the samples examined by Hirschberger 50 per cent contained tubercle bacilli.

MacFadyean and Woodhead found 70 per cent of the specimens examined by them contained tubercle bacilli. These udders were all tuberculous. Of milk from udders not tuberculous, they found 16 per cent contained tubercle bacilli.

Delepine found tubercle bacilli in 20 per cent of the specimens examined by him.

Hope, of Liverpool, of 228 samples of city milk found 5.2 per cent contained tubercle bacilli. Of 67 samples of country milk, 13.4 per cent contained tubercle bacilli.

Of 107 samples examined by Hess in New York, 17 were found to contain tubercle bacilli.

Rabinowitsch, of Berlin, found tubercle bacilli in 25 per cent of specimens examined. In milk from reacting cows she found tubercle bacilli in 7.4 per cent.

At the Laboratory of the State Live Stock Sanitary Board of Pennsylvania,—we examined the milk of five cows which reacted to tuberculin but whose udders were found to be free from tuberculosis, both during life and on post mortem. Tubercle bacilli were found in 15.8 per cent of the samples.

Without going into a lengthy discussion of this matter it may be stated that milk in most communities is more or less contaminated with bovine tubercle bacilli. It has been shown beyond doubt that these tubercle bacilli may pass into the milk through the udder, but perhaps more often they gain entrance through contamination with the faeces of the cow. Cows are known to swallow a large proportion of the material which they cough up from their lungs and this passes through the digestive tract. The milk of cows suffering from tuberculosis of the udder is particularly dangerous and practically always contains enormous numbers of highly virulent tubercle bacilli.

Second. Can bovine tubercle bacilli be recognized? The character of the tubercle bacillus found in the lesions of human beings is determined by inoculation of rabbits and animals of the bovine species. In 1901 Koch suggested the inoculation of cattle as a method by which their character could be definitely determined. This has been followed out by many observers, but more recent work has shown that the rabbit when inoculated under the skin in suitable doses is almost as good a diagnostic agent as the more expensive cattle. By these means it has been shown that many children dying of tuberculosis, and many suffering from tuberculosis of the glands have been infected from bovine sources. Up to the present time only nine cases have been found in which tuberculosis of the lungs, or the ordinary consumption of adults, has been shown to be due to the bovine germ. The question naturally arises, does residence in the human body so change the bovine tubercle bacillus as to make it impossible to differentiate from the human germ?

While the tubercle bacillus is quite retentive of its characteristics under artificial cultivation, the following experiments and observations seem to prove that changes can and do take place in its character according to the soil in which it grows.

In experiments at the University of Pennsylvania by Dr. Leonard Pearson and myself we succeeded in one instance in changing a bacillus which was typically human into one which was typically bovine. I acknowledge very freely that the experiment was not repeated. Further than this everyone who has done experimental work in regard to tuberculosis knows that during the long period of time required it is possible for outside infection to occur. It is also possible that an experimental animal may carry a latent tuberculosis of the bovine type. However, every precaution possible was taken in these

experiments. After five passages through calves, the culture from being typically human became typically bovine in every respect.

During the last year Professor Eber, of Leipsic, has published a report of a similar piece of work and come to very much the same conclusion. Nocard succeeded in changing a mammalian tubercle bacillus into one of the avian type by enclosing the culture in a collodion sack and putting it in the peritoneal cavity of a bird. The fish tubercle bacillus described by Dubard almost certainly had its origin in sputum from a consumptive which was thrown into the stream where the fish were kept. Moller has also changed the type of the tubercle bacillus by passage through the blind worm. It is well known that birds are usually quite resistant to the mammalian tubercle bacillus, yet either by feeding or by inoculation a certain number will succumb. From such a bird the disease can be carried on in series. In other words, the mammalian bacillus has become changed into one of the avian type. Romer has reported an autopsy made on a tuberculous cow in which the intestines and glands were exposed to chickens. One after another of the flock of chickens died of avian tuberculosis. Thus, we have good evidence that the tubercle bacillus does change its type and character according to the soil in which it lives. The difference between the mammalian type of tubercle bacillus and the avian type is very much greater than that between the bovine and the human.

Further than this it is well known that the tubercle bacillus under constant cultivation in the laboratory may undergo a loss of virulence and a change in morphology. This is strikingly illustrated in cultures of the bovine type which after a certain number of generations on artificial culture media change their staining characteristics and morphology. We have certain observations also of a marked change in virulence. not only in bovine tubercle bacilli, but in human as well. If the tubercle bacillus does not change its type by prolonged residence in a given soil, it seems to be an exception to all germs of which we have any knowledge. After a number of years of work with cultures of tubercle bacilli, I acknowledge very freely that it is exceedingly retentive of its type and characteristics, perhaps more so than any other germ which we know, yet I think it must be conceded that changes do take place.

Third. That the bovine tubercle bacillus does actually cause death in human beings has been abundantly proven by experi-

ments in many parts of the world. The first of these were done at the laboratory of the State Live Stock Sanitary Board of Pennsylvania and reported in 1902. Pure cultures were isolated from the tissues of children dead of tuberculosis and inoculated into cattle, producing generalized tuberculosis, followed by death of the animal. Soon after the British Congress on Tuberculosis in 1901, the German and English Governments both appointed Commissions to study this question. The German Imperial Commission was guided in its deliberations by 25 of the leading professors of the German Empire, including Koch himself. They have reported that of 84 children examined by them 21, or exactly 25 per cent, showed infection with the bovine germ. The final report of the English Royal Commission has just been issued and I will quote directly from it:

"Of the total of 108 cases of human tuberculosis investigated 84 yielded human tubercle bacilli only, 19 yielded bovine tubercle bacilli only, and 5 both bovine and human tubercle bacilli. Although the bovine tubercle bacillus may, as it appears, be solely responsible for certain cases of pulmonary tuberculosis (consumption) and though it may be present with the human tubercle bacillus in the bronchial glands, it is evident from the data recorded that the majority of cases in which the bovine tubercle bacillus is the infective agent in the human being are cases of alimentary tuberculosis. Such are cases of cervical gland and primary abdominal tuberculosis. In the latter class of cases at least the tubercle bacillus has unquestionably been swallowed. Received in this way the tubercle bacillus, whether human or bovine, may pass through the pharyngeal or buccal mucous membrane and infect the cervical glands, or getting into the small intestine it may produce several different lesions such as ulceration of the gut, tuberculosis of the mesenteric glands attached and of the peritoneal covering. The percentage of these cases of alimentary tuberculosis due to the bovine tubercle bacillus is very large. Taking both classes of cases (cervical gland and abdominal) together, numbering 38, there are 17 in which the bovine bacillus alone was found, 19 in which the human bacillus alone was found, and 2 in which both were found. Taking the primary abdominal cases alone it is seen that in 16 out of 29 the bovine bacillus was found; in 14 of these it was the sole infective agent present."

They have backed up their scientific findings by recommendations to the Government, from which I also quote:

"Meanwhile we, in view of the evidence adduced by us, regard ourselves as called upon to pronounce on administrative

measures required in the present for obtaining security against transmission of bovine tubercle bacilli by means of food. In the interests therefore of infants and children, the members of the population whom we have proved to be especially endangered, and for the reasonable safeguarding of the public health generally, we would urge that existing regulations and supervision of milk production and meat preparation be not relaxed; that on the contrary Government should cause to be enforced throughout the kingdom food regulations planned to afford better security against the infection of human beings through the medium of articles of diet derived from tuberculous animals.

"More particularly we would urge action in this sense in order to avert or minimize the present danger arising from the consumption of infected milk. And in this connection it may be convenient for us to repeat certain facts observed by us in reference to the conditions tending to the elimination by the cow of bovine tubercle bacilli in her milk; facts in our opinion of such importance that they formed the subject of our Third Interim Report.

"Bovine tubercle bacilli are apt to be abundantly present in milk as sold to the public when there is tuberculous disease of the udder of the cow from which it was obtained. This fact is, we believe, generally recognized though not adequately guarded against. But these bacilli may also be present in the milk of tuberculous cows presenting no evidence whatever of disease of the udder, even when examined post mortem. Further, the milk of tuberculous cows not containing bacilli as it leaves the udder may, and frequently does, become infective by being contaminated with the faeces or uterine discharges of such diseased animal. We are convinced that measures for securing the prevention of ingestion of living bovine tubercle bacilli with milk would greatly reduce the number of cases of abdominal and cervical gland tuberculosis in children, and that such measures should include the exclusion from the food supply of the milk of the recognizably tuberculous cow, irrespective of the site of the disease, whether in the udder or in the internal organs."

These conclusions arrived at after nine years of careful study by men of scientific attainment and rigid integrity I wish to endorse with all the force of which I am capable. In fact, I feel that we should go one step further. The public should be instructed as to the proven facts in regard to the dangers of the milk from tuberculous cows, and we should demand not only that no milk from tuberculous animals

should be served to children, but further than this, that every cow which is furnishing milk for market should be proven to be free from tuberculosis by means of the tuberculin test.

DISCUSSION

Dr. Henry L. Coit, Newark, N. J.: The danger of bovine tuberculosis as transmitted to man by cow's milk is universally recognized in Europe. Many large cities make it necessary by municipal ordinance that all city milk be sterilized at 102° centigrade. It has been found that in those cities scorbutus and malnutrition of infants is a negligible matter.

If, as it has been demonstrated, the slime from any city milk which has been certrifuged will invariably produce tuberculosis by inoculation of lower animals, then safety measures should be applied to all city milk, and if necessary it should be cooked.

The certified milk monument in this country stands for the efforts of the medical profession to obtain milk of a grade of purity, of quality and of safety, leads every other attempt to procure clean, raw cow's milk, namely Certified Milk, and as an exponent of this monument I must say that there may be occasions when with this highest effort to control milk may contain bovine tubercle bacilli, when a reacting certified cow has jumped over the fence to join her herd.

In this case, however, the milk would be "certified" in name, but not in fact.

Dr. J. W. Schereschewsky, Washington, D. C.: As the representative of the Public Health and Marine Hospital Service, I desire to say that, as far as the attitude of the service is concerned it is thoroughly in accord with the belief that the transmission and spread of tuberculosis by milk and dairy products plays an important part in the spread of this disorder. And that it is prepared to advocate one of two measures first either the elimination of tuberculosis among cattle, or failing this the universal destruction of tubercle bacilli in milk by heating.

Mrs. William Lowell Putnam, Chairman of the Executive Committee, Massachusetts Milk Consumers' Association: It may not be generally known by this gathering that, although there is, as Dr. Coit has said, much less bovine tuberculosis in this country than in Europe, Dr. Melvin, chief of the Bureau of Animal Industry of the United States, has estimated that in the stock-raising industry of the United States $23,000,000 is annually lost from bovine tuberculosis alone, in cattle and swine. Hence the tuberculin test of cattle is immensely for the benefit of the agricultural interests as well as for the protection of the public health.

Prof. Ravenel presented the following resolution:

In view of the positive scientific evidence presented in Europe and this country, especially the extensive studies of the English Royal Com. and the German Imperial Com. in Europe, and the New York City Research Laboratories, and the Laboratory of the State Live Stock Sanitary Board of Pennsylvania, Be it

Resolved, That we recognize that the bovine tubercle bacillus is a frequent cause of extensive and fatal tuberculosis in human beings, children and infants being especially liable to this infection.

See Resolutions adopted by the Section, Page 256.

PASTEURIZATION

A paper on Pasteurization was presented by Dr. W. A. Evans, of Chicago. The author's summary of the paper follows:

Dr. Evans argued that there is no feasible way of preventing the spread of typhoid, tuberculosis, scarlet fever and diphtheria through milk except controlled pasteurization. This may not be true of small cities but it is true of large ones.

The measures necessary to make certified milk safe place so heavy a burden on the cost of production that a fair price is more than the poorer people can pay. Even at that, epidemics spread by certified milk occasionally occur. Inspection close enough to prevent the infection of milk is not within the reach of city health departments nor will it be within the next ten years.

The increasing knowledge of the ability of carriers and atypical cases to infect milk makes this conclusion the more inevitable. In milk for baby feeding, "time is the essence of the contract." The commercial methods, the transportation methods, the length of haul—these and other factors are working to increase the age of the milk as it comes to the baby.

Pasteurization makes a two-day milk average as harmless, from the standpoint of bacterial count and chemical change, as a raw one-day milk. This is a conservative estimate of the difference between them and anything which serves to cut down the age of milk one day is worth while. On the other hand, the arguments against it have all gone to the ground. Its proteid is not changed. Those who argue that it is made less digestible have had their position taken from under them by the proof that the curd of boiled milk is softer than that of raw milk. There is no proof that pasteurized milk is less digestible or less assimilable than raw milk. The contention that it produces rickets is no longer advanced. The contention that it causes scurvy is still held by some. But it is now the general custom to give babies orange and prune juice whether they take pasteurized or raw milk.

DISCUSSION

Dr. Bell: Pasteurization is simply a confession of inefficient inspection. The installation of municipal pasteurization will postpone for ages the development of a properly inspected milk. Cities should not be obliged to inspect the distant sources of milk supplies. If the local boards of health were properly organized for effectiveness then the various supplies would be controlled at the source.

The epidemics reported have not been incontestably proven as due to milk. Clinical evidence is abundant to prove that babies who have done badly on old and pasteurized milk have improved immediately when put upon fresh milk of the same formula or a simple one. Why not apply our energies and funds at the source of infection?

Milk is mostly infected during milking from the skin and hairs of the animal, which infection is, in turn, derived from the intestinal canal of the animal. This is true of tuberculosis, as well as other infectious organisms. As we do not know the etiology of scorbutis at the present time, I did not in my remarks refer to this condition.

Dr. J. W. Van der Slice, Chicago, Ill.: A wide difference exists between pasteurized and commercially pasteurized milk, or a so-called pasteurized milk which allows over 1,000,000 bacteria per c. c. As to the very poor grade of market milk now supplied in Chicago, we are all of one mind that this milk would be greatly improved by cooking.

Dr. J. H. Hess, Chicago, Ill.: I would like Dr. Van der Slice's authority for his statement that all pediatricians have experienced more scurvy since pasteurization than in fifteen years preceding.

This has not been my experience. But if this is true how can he reconcile this to his statement that a milk-boiling crusade should be advocated?

Dr. Henry L. Coit, Newark, N. J.: In regard to the relation of pasteurization to the causation of scorbutus, I have on record in my office more than two hundred cases of scorbutus, the histories of which I have followed, and twenty-five per cent of these cases of scurvy had never digested any milk but raw milk. Scorbutus is an eliminative reaction due to several factors, including bad feeding and bad hygiene.

Dr. Isaac A. Abt, Chicago, Ill.: I must state as my experience that I have seen a great many cases of scurvy, though it sems to me that I have seen fewer cases in the last eight or ten years. Freeman has shown that nearly as many cases of rickets and scurvy are found among breast-fed infants as among those fed on pasteurized milk. I grant Dr. Van der Slice that he has seen more cases of scurvy recently, though I think it is a mere coincidence.

Prof. M. P. Ravenel, University of Wisconsin: Dr. Bell has given a new point. He has shown that change from old milk to fresh, warm-from-the-cow milk, has produced good effect. This seems to me the crux of the question. We all prefer fresh, clean milk to pasteurized, but in our large cities this seems impossible to obtain, and we must fall back on pasteurization.

Wilbur C. Phillips, Secretary, Milwaukee Child Welfare Commission: The unanimous verdict of all sanitarians and public health authorities is that the pasteurization of milk is absolutely necessary as a public health measure. The only doubt which has been expressed as to desirability of pasteurization arises from the opinion of some that pasteurization has an injurious effect upon the digestibility and nutritional value of milk from the standpoint of infants. I wish to say that data are absolutely lacking to prove this point. A study of the comparative chemical and clinical effect of raw and pasteurized milk upon sufficiently large groups of children to warrant statistical conclusions would cost between $20,000 and $30,000. Until such a study has been made we are merely theorizing about the matter. But the effect, if any, is so slight that it cannot be regarded as an argument against pasteurization as a public health measure, to prevent the spread of contagious diseases and to combat summer diarrhea among infants.

COW'S MILK AS A FOOD FOR INFANTS

By I. A. ABT, M. D., Chicago

In presenting this paper to the section on city milk supply, it should be said that it is intended to be a brief resumé of our knowledge concerning the food stuffs which are in use for the nutrition of infants and a consideration of the various plans of artificial feeding.

In recent years much progress has been made in the study of the chemistry and nutritional value of milk. There has been much discussion over the difficulties encountered by the infant in digesting cow's milk. During the earlier period it was thought that indgestion was caused by proteids. This thought was particularly emphasized by Biedert. It was he who taught that the excess of proteid in cow's milk produced large indigestible curds in the stomach and these were passed through the intestinal tract undigested. He supported this view by the old test tube experiment which showed that the precipitate or curd of cow's milk was a heavy, firm coagulum, while that of breast milk was a fine flocculent precipitate. Czerny, of Breslau, attacked this view and attempted to prove by chemical methods and clinical observations that this conception was not tenable. Indeed, Czerny went so far as to say that the proteid of cow's milk could cause no disturbance of digestion. According to him the proteid was absolved of all harm and the fat was first and foremost the foodstuff which made mischief.

Leaving this topic for the moment, it may be pointed out that other views were brought forward to explain the difficulties which the infant experienced in the digestion of cow's milk.

With the advent of the bacteriologic era it was attempted to prove that the contamination of milk by bacteria and their products was capable of producing nearly all disorders of digestion. While it has been proved for all time that milk may be the carrier of disease germs, it is not conceded by those who are best informed that milk containing non-pathogenic organisms can be held responisble for the various disturbances of digestion and nutrition which occur so frequently in artificially fed infants.

Of all the vast amount of energy and labor which has been expended in the histological study of the mucuous membrane of the digestive tube, but meagre results have been the reward. In other words, children who have died of gastro-intestinal disorders and upon whom most painstaking pathological and histological investigation has been made, were usually interred with the verdict that the pathological findings were insignificant, or out of all proportion to the severity of the clinical symptoms. No one found degenerative processes of sufficient severity to explain the disease or the death of the patient. No one was able to say, even after a most painstaking examination, that functional activity of the digestive glands was insufficient to carry on their normal functions.

Thus, it is evident that neither disease nor degeneration of the digestive tract nor loss of physiologic function adequately explained the nature of these disorders.

Briefly, it may be stated that various views such as the presence or absence of specific ferments in the milk or the fact that the proteid of cow's milk is not specific for infants' food cannot adequately explain the difficulties of artificial feeding.

This brings us to the point which we were considering a moment ago and which has received emphasis in recent years by the diligent research and labor of the European investigators. Czerny has suggested a new classification for the gastro-intestinal disturbances of infants. The most important division in his estimation refers to "injuries produced by food." He thinks that fat contained in the milk is by far the most toxic ingredient. It is an elementary fact in chemistry that if fat be acted upon by digestive secretions it is split up into fatty acids; these in turn tend to combine with alkalies. If fat be injested by the infant in excess the resultant fatty acids tend to combine with the alkalies of the body, thus depriving the organism of alkalies which are required to neutralize the acids of the body. Consequently the fluids and tissues are subjected to the toxic effect of unneutralized acid substances circulating in the fluids of the body, producing a condition which is technically spoken of as "acidosis." The fatty acids which have combined with the alkalies produce soaps and are evacuated as such in the feces.

The foregoing statements must not be construed to mean that fat is not a normal constituent of the infant's food or that if given in proper amounts to healthy infants it is harmful. The fat of breast milk if not present in excess, given to a normal baby rarely does harm. Similarly, fat in cow's milk given to a normal infant in proper quantity is a source of heat

and energy and assists in the upbuilding processes of the body.

The sugar contained in milk is important from the standpoint of nutrition. It constitutes the carbohydrate element of the food and is of great value in nutritive processes. If sugar be given in excess or if it be given to an infant already debilitated by disease of the digestive tract, serious disturbances occur. This is perhaps more true of milk sugar than of other sugars. Finkelstein has described an acute poisoning under the caption of ailmentary intoxication.

This condition occurs as a rule in infants who have been previously ill and in whom the porosity of the tissues of the intestinal wall has been increased. The damage to the intestinal epithelium has broken down the barrier which separates the intestinal tube from the tissues and organs which lie beyond. Thus sugar and its deleterious by-products manufactured in the processes of digestion are easily carried as toxic substances to the fluids and cells of the entire organism, producing profound constitutional disturbances and symptoms of intoxication—such as disturbances of consciousness, changes in the type of respiration, alimentary glycosuria, fever, collapse, diarrhoeas, albuminuria with urinary casts, loss in weight and leucocytosis.

The salts contained in milk are important from a nutritional standpoint because they supply to the growing organism calcium and phosphorus for bone formation and the mineral content of the circulating fluids. If salt be withdrawn from the diet the infant loses in weight; the temperature is likely to sink to subnormal. If it be given in excess, a febrile reaction occurs.

An excess of calcium tends to produce retention of fluid in the body, sometimes with dropsical manifestations.

Within recent time Finkelstein and his students have pointed out that the whey of cow's milk was capable of producing disturbances of digestion. It is not definitely stated what constituents of the whey do harm, though the inorganic salts are suspected of doing the mischief; it is supposed that the fluid residue of the milk acts by producing irritation of the gastrointestinal epithelium, causing a reduction in its digestive function and diminishing the functional activity of the cells.

This, in brief, then is a statement of the present status of the physiology of nutrition and the ideas which are prevalent concerning the injuries which may be produced by food. The final solution of the underlying problems has not yet been determined, but nevertheless experimental and clinical re-

search tend to strengthen the view that injuries may be produced by food, and the individual constituents of milk require further anlysis and study from this view point.

Feeding Methods.

The simple dilution of cow's milk with water was one of the original methods. It was planned to adapt the food to the infant simply by diluting the strength of the proteid. Sugar was added, usually milk sugar, in order to increase the carbohydrate content, which was diminished by dilution with water. Many years ago Jacobi advised the addition of cereal decoctions. Oatmeal water, he thought, was indicated when constipation was present, and barley water was most appropriate in the case of diarrhoea. The cereal decoction added somewhat to the nutritive character of the mixture. For a long time it was a mooted point whether young infants were capable of digesting starch. It has been determined that children three months and over are capable of carrying on a moderate amount of starch digestion. It cannot be denied that many normal babies were and are still being successfully fed on simple milk dilutions.

Prof. Rotch, elaborating the methods of Biedert and Meigs, conceived the idea that milk mixtures might be preposed synthethically, with a definite percentage content of fat, sugar, proteid and alkalinity so that from the standpoint of percentage composition the milk might be suited to the child's age, and to his power of digestion. Thus, formulae were constructed and milk prepared which contained a certain definite amount of fat, sugar and proteid. In normal children six months or older, milk which contained 4 per cent fat, 7 per cent sugar, 2 per cent proteid, corresponding in percentage composition to human milk, was employed. This plan of feeding still has its enthusiastic advocates. That it has survived is proof sufficient that it has a wide range of usefulness. That it has sometimes failed is evidence that the method is not of universal application, or possibly in some instances that the technique and method of its employment is not fully understood by all who would use it. In this connection it should be emphatically stated that whatever method of artificial feeding has been employed in the past or is in use at the present time will succeed in proportion to the intelligence and experience of the physician who prescribes the food; secondly, upon the fidelity, intelligence, reliability and experience of the nurse or mother who is carrying out instructions. To illus-

trate still further, a food formula may be adapted to the child, though it may be given too frequently, too hot or too cold, too fast; or it sometimes happens in infants' hospitals and occasionally in homes that the child is literally told to help himself. Or occasionally the infant is shaken or tossed during or after the feeding until the food is regurgitated.

Heubner elaborated the simple dilution method, basing his modification upon the theory that an infant requires a certain definite number of heat units or calories to provide for repair, growth and development. The figures which have been obtained were derived from most painstaking metabolism experiments and calorimetric methods. For purposes of illustration it is sufficient to say that it was determined that an infant needed from 40 to 45 calories for every pound of its weight. Thus an infant weighing ten pounds should be given an equivalent of 400 to 450 calories of food per day. This can readily be calculated when it is remembered that one ounce of milk contains 21 calories, one ounce of cream 64 calories, one ounce of skim milk or buttermilk 10 calories, one ounce of sugar 120 calories, one ounce of flour 100 calories, one ounce of barley water (one ounce to a quart of water) 3 calories, one ounce of infant foods 100 calories. Heubner attempted to supply the caloric needs of the infant by the use of three mixtures. The first consisted of one-third milk, two-thirds water, with the addition of 8 per cent of sugar, or lactose. Second formula, adapted particularly to children of the second or third month, one-half milk with one-half water and the addition of 10 per cent lactose. The third formula, adapted for children after the third or fourth month consisted of two-thirds milk, one-third water and 12 per cent. lactose. In connection with this method, a word of comment may be suggested by the critical observer who may be led to ask: If the caloric requirements are covered, will the digestion be sufficient to consume and transform the excessive quantities of sugar or other food-stuffs? In other words, should we reckon with calories without studying the individual baby and its digestion? Nevertheless, it should be emphasized that the caloric estimation of food values is an excellent check for all feeding methods. It protects the normal baby, to a certain degree, against overfeeding as well as underfeeding.

Budin's excellent rule calculates the amount of milk required as that quantity which will be equivalent to one-tenth of the infant's body weight. Thus an infant weighing ten pounds should have one pound, or one pint of milk properly

diluted in 24 hours. Or, by a modification of this rule the infant may receive daily an ounce and a quarter to an ounce and a half of milk for every pound of body weight.

With the advent of Czerny, it will be remembered, we were taught that the fat of milk was the evil-doer; that over-feeding and too frequent feeding was the usual cause of indigestion. In applying a remedy for excessive fat in the food and over-feeding, Czerny introduced the plan of long intervals between feedings. Five feedings, as a rule, and occasionally six, is a valuable innovation in infant feeding. It is of practical application and is a meaesure of great value in prevention as well as treatment. In order to overcome the difficulties produced by fat, Czerny employed skim milk mixtures, buttermilk mixtures, Kellar's Malt Soup and low fat mixtures.

It was also found that not only fat, but also starch was capable of producing injury. Children who were fed excessively with starch, lost greatly in weight and became extremely pale and suffered from abdominal distension. In another class of injuries produced by starch, the children gained in weight, but eventually the tissues became water-logged, the resistance diminished, and infections of various kinds occurred. Pneumonia, otitis, furunculosis and other infective processes were not infrequent. Or in another variety the muscles became hard and rigid, the trunk and extremities stiff like a board. It is needless to say that in these cases starch food should be withdrawn entirely and small quantities of breast milk or diluted cow's milk should be employed.

As in all empirical methods, so in infant feeding we find extreme degrees of opinion. Thus, Budin in Paris, Schlessinger in Breslau, and Oppenheimer in Munich have urged the use of undiluted cow's milk. While this plan has not met with popular approbation, nor has it been generally successful, nevertheless we must grant that it has suceeded in some instances, notably under the direction of Budin.

As has been previously stated, Finkelstein sees the harm produced by cow's milk in the whey content. He feels that whey added by an excess of sugar may produce the most alarming symptoms. He cannot strictly agree that fat deserves the place which Czerny assigns it. According to Finkelstein, it is not the root of all evil in infant feeding. Meyer, the associate of Finkelstein, has attempted to show by an ingenious experiment the harmfulness of the whey of cow's milk. To the whey of human breast milk he added the curd of cow's milk without producing indigestion or unfavorable symptoms on the part of the infants, vice versa to the whey of cow's milk he added the curd of human milk, resulting in

the production of indigestion and unfavorable symptoms in almost every infant thus fed.

Finkelstein has attempted to surmount the difficulties thus caused by whey by preparing his now celebrated "Eiweiss" or "Albumen" milk. Briefly, its method of preparation may be indicated: The curd or junket derived from a quart of milk is finely divided by passing it through a sieve and is thoroughly mixed with a pint of water and a pint of buttermilk. Sugar in the form of maltose in the strength of 1 to 5 per cent is added. This method of feding is more particularly adapted to infants suffering from indigestion or gastro-intestinal disease. While it is of too recent origin to receive final judgment, nevertheless, if properly employed, we believe it has a definite range of usefulness.

In the brief time which is allotted to this paper it would be impossible to consider in necessary detail all the methods which are employed in the prepartion of infant foods. Peptonization of milk is not now in popular favor. For purely theoretical reasons Czerny and his students would reject it, because, as they say, the proteids of milk are not the cause of trouble. From the standpoint of practical experience we know that peptonization of milk frequently causes diarrhoea and symptoms of gastro-intestinal irritation. The addition of sodium citrate to milk in strength of one or two grains to the ounce probably acts by preventing the coagulation of milk in the stomach, thus permittng it to pass readily into the small intestine. It is believed that with the addition of sodium citrate, digestion does not take place actively in the stomach and consequently gastric digestion is replaced by the more powerful digestion in the small intestine. As to the use of patent foods only a word need be said. They possess no advantage over cow's milk. They may be occasionally added, especially those containing malt, as an adjuvant. In these instances they are a substitute for sugar, containing its nutritive value. In no case has a proprietary food served as a specific in infant feeding or as a substitute for milk.

To sum it all up:

1. In order to feed an infant successfully one must have a definite knowledge as to the status of the infant, his digestive function and his constitutional state.
2. A knowledge of the physiology of food, the injuries produced by food and the tolerance for food is requisite.
3. Overfeeding is as disastrous as underfeeding.
4. An excess of fat or sugar is capable of producing toxic symptoms.

5. Simple milk mixtures, that is, milk diluted with water or cereal decoction, with the addition of 1 to 5 per cent of sugar will in most cases give satisfactory results.

6. Elaborate and complicated milk formulae are not ordinarily required.

7. The technique of feeding, consists of careful preparation and proper administration of the food. These are not the least important elements in successful feeding.

8. In feeding sick infants it is frequently possible to ascertain which element of food in the milk mixture is producing harm and the proper modification may be made.

9. Some children have an idiocyncrasy against cow's milk as evidenced by the production of toxic symptoms. In such cases breast milk, or a suitable adoption of cow's milk should be instituted.

10. Every baby, especially every abnormal baby, is a law unto itself and should be studied as an individual. No one's dictum or rule or recent discovery is as important as a knowledge of general principles of feeding and the physiology of food and digestion.

11. Prolonged starvation lowers resistance, and predisposes to disease and death.

12. Prolonged and excessive use of laaxtive drugs does not assist in the digestion or assimilation of food.

13. Scalded or boiled milk sometimes agrees when raw milk causes indigestion and diarrhoea.

14. An infant may be difficult to feed because he is suffering from an inherited disease, an antomical malformation, a constitutional vice or an infectious disease.

15. Fresh air, intelligent care, good housing conditions, frequent bathing and cleanliness, proper clothing for summer and winter are powerful adjuvants in all that pertains to normal digestion and the upbuilding processes of infants.

THE BEST METHODS OF COLLECTING AND TRANSPORTING MILK DESTINED AS FOOD FOR INFANTS

P. G. HEINEMANN, Ph. D., University of Chicago

The introduction of scientific methods in place of empirical methods has always provoked more or less opposition. There is perhaps no industry which has been held back by such opposition to a greater degree than the dairy industry, which is one of the oldest and one of the most useful to mankind. Sanitarians have attempted to improve dairy methods with moderate success chiefly by systematic inspection of the places of production and by bacteriological examinations of the products. The result has been a concentration of attention on cleanliness of production, prompt cooling, and keeping the milk cool up to the time of consumption. The number of bacteria present in milk is usually taken as an index of cleanliness. Prompt cooling and keeping cool restricts multiplication, while cleanliness in production restricts the number which gain access.

The presence of bacteria in milk interests us chiefly inasmuch as disease germs may enter in various ways. Sanitary means must therefore aim at reducing the numbers which enter during production or at destroying those which have gained access. The great majority of bacteria in milk are probably harmless, but frequently disease germs are present. These may be derived from the cow, the milker or from those handling the milk.

There are some sanitarians who demand a perfect product. Milk for infant feeding may be either pasteurized or certified milk, good results having been obtained with both. It is claimed that certified milk is the only suitable food for infants. But is certified milk always dependable? The supervision of dairies producing certified milk is carried on by medical milk commissions, who delegate inspectors and veterinarians to inspect the dairies at regular intervals. They delegate medical men to examine the employees to guard against the communication of infectious diseases. These inspections, however, must take place at intervals of varying length, and the control of conditions in the meantime rests with those in charge of the dairies. This is usually insufficient. Epidemics have occasionally been caused by certified milk. It is a stu-

pendous or even impossible task to control conditions even in a certified milk farm to such an extent as to prevent occasional contamination with pathogenic organisms. Diseases of cows in initial stages, employees during the period of incubation of infectious diseases, germ carriers, all these factors must be considered. Only constant supervision by experts can bring about a reasonably certain feeling of safety. Medical Milk Commissions demand a milk with less than 10000 bacteria per cubic centimeter and the total absence of disease germs. Is it possible to obtain these results when new cows from unknown sources are constantly received in the herd and when new employees take the places of former ones at frequent intervals? We may safely assume that in the production of certified milk the chances of danger are materially reduced as compared with the production of ordinary market milk. However, confidence in this kind of milk should not be exaggerated.

The difference in quality between certified milk and market milk is enormous. However, the most rapid advance in improving the milk supply must be obtained by developing present methods rather than by forcing ideal methods, especially since absolute ideals are at present unknown. Ayers and Johnson state boldly that efficiently pasteurized milk is equal to certified milk from a bacteriological standpoint and so far chemists and clinicians have failed to show that from their standpoints pasteurized milk is inferior to certified milk. The upshot of the matter is that demands have been forced upon producers of certified milk which are often extreme and sometimes superfluous. Consequently, certified milk is so far superior to ordinary market milk that the latter is greatly neglected, the ideal being considered unattainable by many producers. Under the present system of supervision of certified milk farms much attention is paid to certain phases of production, while others suffer from inattention. Pasteurized milk is often condemned because the present methods of pasteurization are not perfect, and on other grounds which still lack proof. Without pasteurization the only choice lies between ordinary market milk and certified milk. Much education is needed before it will be possible to improve our present supplies so as to render them relatively safe, since market milk sometimes contains the germs of infectious diseases and certified milk cannot be shown to be always free from these infections.

The germs which are the etiological agents of infantile intestinal troubles have been the subject of much scientific in-

vestigation, but up to the present time little positive knowledge has been acquired. We can therefore reduce the chances of infection only by reducing the total number of bacteria in milk in the expectation of removing, or preventing access of, dangerous germs together with harmless forms. The attainment of this object is sought by pasteurization or the production of milk under strict sanitary supervision. Both methods are still in their infancy and much improvement is necessary before they will prove efficient.

Milk which is to be pasteurized should not be produced carelessly, as is done occasionally. Milk of fairly good quality should be used and by inspection of the producing dairies this object can be obtained without making excessive demands on the producer. If this milk is kept below 50° F. it will be in good condition for pasteurization. The continuous method of pasteurization has been shown to be inefficient and should be condemned. The holding process has many advantages and is reliable. Quite recently it has been suggested that milk be bottled before pasteurization and then pasteurized in a similar way as beer is pasteurized. The bottles are hung on wires or placed in wire baskets and passed through water of moderate temperature at first, and then passed through warmer water until a temperature of 145° F. is reached. Here the bottles are held for 20 to 30 minutes. The great advantage of this system is the fact that no handling is required after pasteurization, so that recontamination is avoided. The possibility of contaminating the milk with disease germs after pasteurization is also avoided by this method. For this process it has been suggested to use bottles with narrow necks like beer bottles and cover them with caps such as are generally used for beer bottles. There is no difficulty in cleaning these bottles, as has been advanced, since machinery for this purpose is now on the market. It seems to me that this method of bottling and pasteurizing is destined to take the place of all other methods. It is economical and yields a safe product.

The production of certified milk has receivd much attention during recent years. There are now more than 70 medical milk commissions in this country, which exercise control over the supply of certified milk. As intimated, however, there is much room for improvement in various ways, improvements both of positive and negative character. Demands on the dairies have been exaggerated so as to increase the cost of production unnecessarily. Regulations for feeding cows are too exacting. These regulations should not go beyond demand-

ing clean and healthful fodder, for it has been shown that each breed of cows produces a characteristic quality of milk, which cannot be altered materially by variations of food, unless the change affects the general health of the animal. The construction of the stables is made a special feature in contracts with milk commissions. Cement floors are to be preferred to wood floors, to be sure, but some dairies have produced milk fully equal to certified milk, with relatively inferior equipments as to floors and general construction of stables. In some contracts between milk commissions and producers even the architectural style of the buildings has been made the subject of regulation. Ventilation, light, temperature and other factors surely contribute to the health and comfort of the cows, but should not be made the subjects of exacting conditions. Inspectors, who are employed by milk commissions or by health authorities, should be high-class men, who do not score dairies according to certain rule of thumb ideas, but who are sufficiently familiar with the subject to use discretion. Producers have frequently been discouraged by indiscreet inspectors.

The consequence of these exacting demands has been that many certified milk dairies have large capitals invested. The cost of production is naturally high and the purchasing price beyond the reach of the majority of the population. We find here again, as in many other instances, that the ideal is placed almost beyond reach under present conditions, so that the true benefit derived is not as great as would be if more conservative methods were practised. The beneficial moral influence of certified milk on the production of market milk would be enhanced if its production were made feasible for the man with small capital.

It has been demonstrated that milk equal to certified milk or nearly so can be produced by an investment of small capital. Cement floors can be laid by an enterprising farmer with his regular help, thus reducing the expense to the cost of the material. A frame building of ordinary construction can be kept clean by care and attention. The cows are as easily kept in good sanitary condition as horses, which receive considerable care at the hands of farmers, although they are used for work and not for the production of a universal article of food. Vacuum cleaners are now used in some certified milk dairies, and although the results seem satisfactory, it is a question whether this mode of cleaning cows is of material advantage. Cold water from a well is available on almost all farms, and can be used largely in place of ice.

There are farms in existence at present where milk of the highest grade is produced and where the original investment is less than two thousand dollars.

If dairy inspectors were to pay closer attention to methods employed in milk production rather than to construction of stables, of floors, of mangers, of bottling rooms, of cooling and bottling machinery, etc., the results would be gratifying. To change existing stables, bottling rooms, stanchions and other fixtures involves expenditure of money. Improvement of methods, increased vigilance and care cost but little and may be applied by any one. Clean methods are more highly responsible for improvement of the product than expensive buildings and machinery.

Certified milk is usually shipped in boxes, the bottles being covered with chipped ice. This is also a source of considerable expense. Still this is necessary as long as railroads use the ordinary type of car for the milk traffic. Well built refrigerator cars which have been introduced by some railroads will keep the milk cold until delivered to the distributing agent, and here another improvement is necessary, namely, to provide delivery wagons with sufficient capacity for ice to keep the milk cold until delivered to the consumer. If all railroads were to use an improved type of car and ice it properly the expense would not be more than one thirty-second of a cent per quart. If the supply comes from a great distance, trains should be run on a faster schedule than is customary at present.

As a result of the statements made in this paper, it is my opinion that a grave mistake is made in concentrating the fight for a pure milk supply on that elusive ideal "clean raw milk" as Nathan Straus terms it. Better results will be obtained by attempts to improve the milk supply as a whole rather than improve an insignificant amount. In cities where certified milk is sold, this constitutes less than one-quarter of one per cent. of the whole supply. If this amount were used for infant food exclusively certified milk would be of greater value in the reduction of infant mortality, but considerable quantities of certified milk are used in hospitals and for convalescents. The great majority of infants must continue to be fed on market milk and it would seem that lasting improvement in present conditions can be brought about by the development of efficient methods of pasteurization, coupled with gradual and systematic betterment of the raw product.

DISCUSSION

Dr. Henry L. Coit, Newark, N. J.: The standards for certified milk are fixed by the National Federation of Medical Milk Commissions and the Council are about to harmonize the work of the seventy-two commissions by requiring them to fulfill the standards of purity, of quality, and of safety—including the methods and regulations for the production of certified milk.

"No Medical Milk Commission shall be considered a component member of the American Association of Medical Milk Commissions which, in the opinion of the Council, fails to conform to the standards and requirements promulgated from time to time in the Association's manual of working methods and standards. Only such Commissions as are recognized by this Association as complying with its requirements are authorized to use the term Certified Milk."

SECTION ON NURSING AND SOCIAL WORK

Thursday, November 16, 2 P. M.

CHAIRMAN

*** MISS M. ADELAIDE NUTTING, Director, Department of Nursing and Health, Teachers' College, Columbia University, New York**

SECRETARY

MISS ELLA PHILLIPS CRANDALL, Instructor, Department of Nursing and Health, Teachers' College, Columbia University

The recommendations of the Section were embodied in the resolutions adopted by the Section. These were reported to the Association at the General Session, held Friday afternoon, November 17th, and all were adopted by the Association, except Resolution IV, concerning Midwifery.

The resolutions follow:

I *Resolved*, That education of mothers in these subjects be made an integral part of baby welfare stations.

(*a*)—Prenatal care

(*b*)—Preparation of clothing

(*c*)—Hygiene of babyhood

(*d*)—Infant feeding.

II *Resolved*, That methods be promoted for giving immediate relief to babies whose parents cannot afford to pay for the better grade milk.

III *Resolved*, That the extension of Little Mothers' Leagues be urged.

† IV *Resolved*, That the nursing profession be asked to extend its field of usefulness by including training for the practice of midwifery for normal cases. Further that a minimum standard of training be required for all who are permitted to practice midwifery and that all midwives be under State or municipal control.

V *Resolved*, That all training schools for nurses be urged to add to their curricula courses by social and civic workers to awaken their pupils to a fuller understanding of the requirements of social service. That all nurses and other social workers be urged to establish closer relationships with each other to secure harmonious action in their efforts for community welfare.

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*In the unavoidable absence of Miss Nutting, the meeting was presided over by Miss Lillian D. Wald, of New York.

†Referred to Executive Committee.

VI *Resolved*, That attention be called to the dearth of care for the sick and the absence of instruction in hygiene in rural districts and that the public be stimulated to concern itself in regard to this matter and the Committee suggests that the National Red Cross Society be asked to consider the proposal made to it sometime ago to inaugurate visiting nursing in neglected communities.

VII *Resolved*, That through municipal and State control the permanency of improved milk supply and milk dispensaries be secured.

(Signed) LILLIAN D. WALD
ALICE L. HIGGINS
EDNA S. FOLEY
CAROLYN C. VAN BLARCOM
ELLA PHILLIPS CRANDALL, *Sec'y.*

Committee on Resolutions, Section on Nursing and Social Work.

On motion of Dr. Hastings H. Hart of New York, action on Resolution IV was held over for a joint discussion of the Sections on Midwifery and Nursing and Social Work.

This discussion took place at the General Session, Saturday morning, Novmber 18th. At the close of the discussion, by vote of the Association, Resolution IV was referred to the Executive Committee for further consideration.*

The Secretary's report of the discussion follows:

Dr. Sherwood, Chairman of the Committee on Midwifery, recommended investigation of midwives. The chairman of the Section on Nursing and Social Work stated that inasmuch as the midwives' problem had been brought into the open by the social workers and the visiting nurse, it was natural that they should feel strongly upon the matter. Despite the fact that in some cities, half the babies born were attended by midwives, there had been no recognition until 1906 of the fact that the women employing them were really exploited through lack of supervision of the people whom the State permitted to practice.

In New York, in 1906, a group of social workers instigated inquiry into the matter and a committee, whose chairman was a nurse, became responsible for a very thorough research. As a consequence of the facts disclosed, the obstetricians, the Department of Health, the medical profession in general, with little or no opposition united with the social workers and

*Referred by the Association to the incoming Executive Committee. The resolution was discussed at meetings of the committee November 30, 1911, and January 13, 1912. At the latter meeting, on motion of Dr. H. J. Gerstenberger, seconded by Dr. J. H. Mason Knox, Jr., the committee unanimously voted to lay it on the table.

visiting nurses to pass a bill making it mandatory for the Department of Health to regulate and to supervise midwives.

Something is now being done officially under the Department of Health and New York has started its first school in connection with Bellevue Hospital under Dr. Brannon's supervision to give at least an elementary training to the midwives who whether rightly or wrongly are called by half the childbearing population of the city.

The recommendation that the nursing profession be asked to extend its field of usefulness by including preparation for and the practice of midwifery for normal cases was defended by the chairman as follows:

Miss Wald stated that inasmuch as the requirement made of midwives was extremely elementary, in New York City the presentation of a letter from a physician that the midwife had attended twenty cases was all that was asked, and the securing of the letter from the physician had not met with insuperable difficulties; and inasmuch as in many cities midwives were not required to give any evidence of any preparation at all; and in some cities the requirement was limited to the request of the midwife to leave her name and address, it seemed to the Committee of the Section on Nursing and Social Work that nurses might be induced to take the place of these untrained women and give to the women employing them the advantage of women trained in asepsis and in the recognition of abnormalities.

In London the publicity given to the poor work of the midwives resulted in trained nurses assuming the duties of the midwife, and according to Miss Van Blarcom's report, after the nurses assumed this role, the physicians were called in twice as many times as when the midwives operated because of the ability of the trained nurse to recognize abnormal conditions. The chairman does not speak for the nursing profession. They may be loath to undertake this additional burden, but they have penetrated into the homes and the neighborhood of the women who are at present using the midwife and they have been welcomed and it is possible that should the nurses be willing to assume this additional burden, the parturient women might be served by careful, clean, trained people instead of women frequently untrained and unprepared for the service.

Dr. Carolyn Hedger, Chicago, strongly opposed the resolution. Her principal argument was that the practice of midwifery necessarily involvd diagnosis and that for a nurse to diagnose is unethical and unwarrantable. She further said in effect that in the course of a few years there would be a

hord of incompetent and unreliable nurse-midwives who would be an additional menace to public health.

Dr. Rachael Yarros, Chicago, followed Dr. Hedger in the discussion and with equal earnestness defended the resolution. She contended that it was perfectly possible to adequately prepare graduate nurses to conduct normal labors and to recognize any departure from the normal. She further said that all the training and practice of nurses ought to lead doctors everywhere to confidently believe that nurses would invariably call a physician immediately upon the detection of any abnormality. Coupled with the highest tributes to nurses she argued that the foreign-born women insisted and always would upon being attended by women during labor, and that the poorer ones could not afford both doctor and a nurse.

Miss Van Blarcom being strongly in favor of the training of midwives and of encouraging nurses to take this training supported Dr. Yarros in her contentions. Miss Van Blarcom at the same time agreed with Dr. Hedger that it was "unethical and unwarrantable" for nurses to make diagnoses. She maintained that the recognition and reporting of symptoms was not making diagnoses, and urged that the training of midwives to recognize symptoms of complications and abnormalities would result in the obstetrical poor receiving medical attention with frequency which would increase as the status of midwives was raised.

Miss Van Blarcom quoted figures from several cities and counties in England illustrating the fact that midwives there, as a result of their training and supervision, send for physicians much more frequently than did midwives in the past before they were trained and controlled. Thus, it was for the purpose of securing not only good nursing care for mothers and babies that she pleaded for a better class of midwives.

Dr. Helen Putnam moved that the question be referred to the Executive Committee for further consideration. This motion was carried.

Mrs. Lowell Putnam of Boston, moved that women physicians be substituted for midwives, but the motion was not honored by the chair.

OPENING REMARKS OF THE CHAIRMAN

MISS LILLIAN D. WALD, New York City

Miss Adelaide Nutting, Chairman of this Section, finds to her regret that it is impossible to be with you and I have come an eleventh-hour substitute Chairman to take her place. We must all regret that Miss Nutting cannot be with us and that her substitute has little familiarity with the program of the afternoon and must ask your indulgence for her departure from the exact instructions of the President of the Conference and from parliamentary orthodoxy.

The topics of the afternoon's program were selected to demonstrate the wide field of responsibility of nurses and social workers in the campaign for the preservation of children. Visiting nurses and social workers are or should be synonomous terms, but their training has been distinct, and in the discussion of the afternoon there will doubtless appear a difference of point of view and method of approach.

All nurses and all social workers who are not nurses agree upon the identity of their ultimate purpose and that their relationship upon the field should be intimate, co-ordinated and perfectly harmonious.

One of the valuable contributions of the trained nurse to medical and social progress is her ability to apply the scientific principles for infant nurture and the maintenance of health. In her hands have been placed the final responsibility of educating in the home and presenting in simplest form the conclusions of the men and women of science. Humble and important has been her function. She has a broad field and close first-hand opportunity for observation which should and does make her testimony of incalculable value.

Such testimony will be presented today from those administering the infant welfare or milk stations, from the visiting obstetrical nurse, the general visiting nurse, the social worker who is not a nurse, but who has been working side by side with her, all of whom often exchange trainings and mingle experiences to the better service of both.

The importance of the quality of the milk and the necessity of instructing the mothers in proper feeding of the infant has brought into existence the infant welfare or milk station, and it is logical that the program of the afternoon should open with a discussion of the problems, general and special, which the milk stations are trying to solve. We shall be able to compare the methods of work in different types of stations—the private, philanthropic and the public municipal. Nurses have organized and directed the work either under a physician or the Commissioner of Health.

INFANT WELFARE OR MILK STATIONS

By MINNIE H. AHRENS, Sup't. Infant Welfare Society, Chicago

Infant Welfare or Milk Stations, with the object of reducing infant mortality from diarrhoeal diseases, are of recent development.

Here and there, in different sections of the country, groups of people and municipal health departments are fighting this scourge, but the great mass of the people have not been aroused to their responsibility in reducing the unnecessary sacrifice of infant life, as essential to conserve as are the other national resources which are receiving so much attention today. The country needs all of her children, and humanity demands that we shall spare no effort in their behalf.

Diarrhoeal diseases are intimately associated with the diet, particularly with milk of a high bacterial content. The organizing of milk stations, from which clean milk might be distributed, came into existence to remedy this evil.

In the year 1889 the first milk stations for distribution of clean milk to the poor were established, one in New York at the Eastern Dispensary by Dr. Koplik, and the other in St. Gertrude's District in Hamburg, Germany. This work was entirely for the sick infants.

In 1892 Veriot opened the first of the "Goutte de lait" in Paris, and the following year Nathan Strauss started his milk laboratory in New York.

What was accomplished by these Stations? Mothers were furnished with a cleaner and better quality of milk, most of which was prepared according to a stock formula, varying as to the age of the child; and they were known as numbers 1-2-3-4-5 or as a-b-c-d-e. This method was harmful inasmuch as it encouraged weaning, and the infants were not fed according to their individual needs. This milk was distributed from centers most accessible to the mother, which were usually settlement houses, day nurseries and parks. The actual work of distribution was sometimes done by one of the workers interested in the welfare of the infant, then again by disinterested persons, none of whom were trained to advise or answer the many questions asked by the anxious mother. Far be it from me to criticise these splendid workers who gave themselves for

the welfare of the infant, many of whom were at their wits' end to know what to do, and would have been only too glad for a helping hand.

Pierre Budin established the "Consultations de nourisons" in 1892 in connection with his maternity hospital. He had the mothers report at regular intervals and the babies were weighed and examined. The importance of breast feeding was taught, and when the breast did not suffice, supplemental feeding was tried, but not until the breast was proven insufficient were the infants put on artificial food.

The Germans took up this work and developed the "fur sorgestellen," as they exist in Berlin today. The object of these Stations is to instruct the mothers in the care and feeding of their babies, always emphasizing breast feeding.

The movement today in dealing with the well baby is preventive rather than curative. The aim is to take the well child and keep it well.

While we have not accurate knowledge as to causation of diarrhoea, the pediatricians agree that correct feeding and general hygiene in the care of the infant are as important in preventing diarrhoea as is clean milk. This knowledge has brought about a reorganization of the milk station and, in some instances, the name has been changed to indicate the broader scope of the work.

It is clear that the problem of infant mortality has to do with conditions which are the results of bad housing, poor sanitation, ignorance and poverty, as well as with correct feeding, but most important of all is a high standard of motherhood.

Efficient motherhood can only be obtained through improved sanitation, better housing, good food, which must also be cheap, domestic education and health.

The occupation of women in factories and work shops, also that of the sweat shop, sewing to the time of confinement, and the early return to work after confinement, all interfere with the nutrition of the child before birth and deprives it of the necessary care after birth. I am sure that many nurses in this audience have seen the mother plying the needle on men's garments with the infant of a few weeks in her lap. I have seen the mother with her babe of less than three months in the shop. The nurse often finds the mother doing a family washing when her child is but four or five days old, a time when she should be in bed with the best of nursing care.

What are our responsibilities as nurses in these problems which make for good motherhood? All will agree that the

nurse who goes into the home and community is given the opportunity of learning at first hand the relation of the environment to the welfare of the family.

The nurse's responsibility is more than the instructing of the mother. She must arouse the public conscience as to the conditions existing which are a menace to good motherhood. It is only upon the demand of the public that the lawmakers will make laws and appropriate funds sufficient to bring about reforms necessary to the health of the family.

If utilized properly, the Infant Welfare Station is a powerful agent in reducing infant mortality. It begins with the instruction of the mother before the birth of her child, so that she may be fitted for the care of the infant. It deals with the first two years of life, during which period the mortality is greatest.

The problems which confront the workers in the Infant Welfare or Milk Station are many and complex, and cannot be solved without helpful co-operation with the existing agencies which are dealing with the family, the closer the co-operation the better the results. Some of these agencies are the Associated Charities, Boards of Health, Hospitals, Visiting Nurses' Associations, Dispensaries, Fresh Air Camps and Day Nurseries. The policeman in the district sometimes makes an efficient assistant.

As with all organizations, in order to carry on the work of the Infant Welfare Stations, adequate funds are necessary and, in most instances, these funds must first be supplied by private philanthropy; therefore, first of all, there must be formed an association of public-spirited citizens who are interested in the conservation of infant life, and who are willing to raise funds and give of themselves. While funds are indispensable, personal interest is just as essential to success. Such an association being formed, the next step is the selection of a general superintendent and a medical director. Wilbur C. Phillips has said: "The best general supervisor is a trained nurse." The woman who has had a good general training as a nurse and who has had additional executive and social training should be well equipped to organize and direct such work. She must possess the ability to organize, to teach and to co-operate. She must be able to stimulate interest in both her co-workers and the public, but under no circumstances should she assume the responsibility of the medical direction.

The problem of reducing infant mortality is, in a large measure, a medical problem, and much will depend upon the choice of the Medical Director. The physician to be chosen for this

office should be selected from the standpoint of his ability as a pediatrist, and should be one who is recognized as an authority on problems relating to infant mortality. He must also be a teacher and organizer.

These two officers must work in the closest harmony, conferring and advising on all questions relating to the work, if satisfactory results are to be obtained.

The problem which must first be solved is that of a good milk supply. Many of the organizations have the milk modified in laboratories which are, in some instances, owned and operated by them, while others have this work done by one of the existing dairies. This is usually expensive and, in a large measure, not necessary. From our experience in the last year, we feel certain that practically all mothers can be taught home modification. By home modification, we understand merely whole milk mixture with barley or oatmeal water and sugar. The percentage method of feeding is entirely unsuited for the work. It is important to provide milk of a low bacterial count, preferably certified, at a price that will be within the reach of the mothers. This is not always easy to accomplish. Chicago has been fortunate in interesting one of the largest distributors in giving certified milk to the babies. Certified milk is regularly sold for 15 cents a quart, but, upon the order of the Infant Welfare Society, it is delivered to the home for 10 cents a quart and 6 cents a pint. The average amount required for 24 hours is a pint, making a daily cost of 6 cents and never more than 10 cents. The Laboratory mixtures are prepared by the Arcady Farm, certified milk only being used. The average cost of milk mixture for 24 hours, prepared in the Laboratory, is 15 cents. October, 1910, 57,087 bottles of modified milk were prepared in the Laboratory against 5,790 in October, 1911. The method of home modification reduces the cost. The mother takes an active part in the care of the child, which added responsibility and obligation develops self-reliance and knowledge. The formula can be given to suit the need of the individual infant. It is most encouraging to see how interested the mothers are, and how well they do the modifying. The plan of delivery to the home relieves the nurse of the responsibility of keeping accounts, which consumes so much valuable time and the busy mother is also relieved.

The Infant Welfare or Milk Station should be located in a district where the infant death rate is high, and where it will be most accessible to the mothers who wish to come for instruction and advice. It must be remembered that these mothers have many cares, making it doubly necessary that the

Station should be within a short distance of their homes. Rooms for such Stations may be available in a settlement, day nursery, or playground; if none such are practical, it may be necessary to create a new center.

There should be preferably two rooms, one for the weighing and the waiting room, and the other for the physician while examining and giving instruction. The equipment for such rooms is very simple, consisting of a scale; two tables, one to be used for examining, and the other for the scales; a desk or writing table for the use of the physician and nurse, file for records, comfortable chairs, thermometer, tongue depressors, outing flannel squares for wrapping the baby in when undressed to be weighed, one-half dozen sheets, several dozen towels, records, and stationery will complete the supplies necessary.

The woman who is to assume the responsibilities of an Infant Welfare Station, and become a factor in reducing infant mortality in that district, must be endowed with education, tact, and energy. She must be resourceful, sympathetic, not easily discouraged, firm, but, at the same time, kind. She must be a well-trained, efficient nurse, having some knowledge of infant feeding and social training, or, at least, a social mind which can be developed without too great expense to the cause.

The nurse is the physician's assistant at the conference which is held at the Station, and later follows the baby into the home, teaching the mother how to carry out the instructions which the physician has given. This instruction in the home, making use of the facilities at hand, is, I believe, the most effectual method. The mother must be taught in the simplest manner, and this, many of you know, must be repeated many times. Much of the success of the Station depends upon the personal hand-to-hand instruction of the nurse. She soon becomes the friend and advisor and is brought into very close contact with the family life. Her intimate association assist her to see the conditions which contribute to high infant mortality. She sees the need and knows the proper agency to which to apply for the particular relief wanted. Relief organizations find the problem often not easily solvable; many times there is a worthless father whose idleness it is not wise to encourage. On the other hand, we are helpless unless the mother who is nursing her child has proper food. If the infant is artificially fed, milk must be provided. Should the offender be disciplined through the innocent one?

The question of who shall give nursing care to the baby registered at the Infant Welfare Station, if it is ill, is one which

has, to my mind, only one answer—the nurse who has already become the friend and advisor and has won the confidence of the mother. If the nurse who has been caring for the infant while he is well calls in a strange nurse to give this care, the mother is justified if she feels her confidence has been misplaced. While the baby is well, nine mothers out of ten do not see the need of the nurse's service.

A mother who had returned from the County Hospital with her newborn baby sent to one of the Chicago Infant Welfare Stations for milk. The nurse told the child who had been sent that she would come over and see the mother and baby. Upon investigation she found there was no occasion for furnishing milk, as the mother was able to nurse Joe. Instruction was given as to regular feeding and hygiene and the mother urged to come to the conference. Joe was kept on the breast and is a beautiful child. Several months ago Joe had pneumonia. The nurse at the Station called a physician, (Joe's mother not being able to pay a private physician.) The usual orders given by the physician were carried out by the Infant Welfare nurse. An uncle visiting the home later did not think Joe was receiving proper treatment, as he was not getting medicine, and proceeded to call in another physician, who prescribed several bottles of medicine, which, however, Joe did not get. The mother said that that might be all right for a horse to take, but she knew that Miss W———— loved Joe, and if he needed medicine she would see that he got it. Joe recovered in a short time without the several bottles of medicine. It would not have been possible for this mother to have had this confidence in a strange nurse, regardless of how good a nurse she might have been, and more than likely Joe would have had the contents of the several bottles.

Mothers' Conferences or Consultations should be held twice a week. This number may be increased during the summer, if found necessary. The holding of more Conferences will require too much of the nurse's time out of the home, and too much emphasis cannot be placed on the instruction given in the home.

In starting the Conferences or Consultations, the first step is a house-to-house canvass and a visit to the relief agencies, settlements, playgrounds, day nurseries, and dispensaries to establish a personal relationship and make known the object of the Infant Welfare Station, always expressing a willingness to co-operate.

The conduct and attendance of the Conference depends upon the personality of the physician and nurse. Some physicians

understand how to ask questions and talk easily to the mother while examining and prescribing for the baby. The ability to do this brings about a friendly relation between the mother and physician, which is most desirable. The instructing of the mothers must be done in the simplest manner possible, because it is the overburdened, tired mother who comes for advice, and her tired brain is not capable of much work. The method of conferring with and instructing the individual mother brings the best results. The physician should give instruction in infant hygiene as well as feeding. He is very apt to overlook this important subject, because he knows the nurse is giving this instruction as she makes her visit to the home, but we all know when the doctor teaches the same thing as the nurse, it is made more emphatic. The nurse should be at her Station at a stated hour each day, so that the mothers may reach her if they wish.

There should not be more than one physician and nurse responsible for a Station. If the work demands it, both may be given assistants. There should be as few changes made as possible. The physician and nurse gain the confidence of the mother, and if she finds a new face she is disappointed and does not return. Mothers, though ignorant and poor, are eager to fulfill their obligations to their children, and the workers in the Infant Welfare Stations should give direction and guidance. This is not always an easy task, as obedience is not always a quality present, and then, too, there is the proverbial grandmother and well-meaning neighbors who are always ready to give counsel.

The teaching of young girls in the care and feeding of infants, and mothers' meetings held once a month, are important features of the work. The mothers' meetings should vary in that they should be of a social nature; this gives an opportunity for play and relaxation, which the mother needs. The first fifteen minutes of the period may be used for instruction, taking up such points with which the nurse is having difficulty. The monthly meetings are looked forward to with a great deal of pleasure by the mothers. They create a friendly relation between the mother and nurse and are an important factor in securing a good attendance at the regular conference.

If there are several of these Stations, there should be a supervising nurse, or, perhaps, some will prefer to call her head nurse or consulting nurse. It makes little difference as to her title. She must be a socially trained nurse with the ability to teach and direct. She should attend the Conferences and, from time to time, visit with the nurse in the

homes. The right kind of woman will always be in demand by the nursing staff.

The nursing profession must see to it that nurses are made competent to assume the responsibility which is theirs in the campaign to conserve infant life.

DISCUSSION

Dr. Geo. W. Goler, Health Commissioner of Rochester, N. Y.: Has not the time come to attack the milk stations instead of supporting them? In building up milk stations we have been losing sight of the fact that the real duty of the legal authorities is to compel the production of milk that is safe to be used by everyone, as the milk stations at best supply only a small portion of the clean milk that is needed. Cities should no longer have laws that soothe but laws that compel, and their inforcement should be insisted upon.

INFANT WELFARE WORK, CLEVELAND

By HARRIET L. LEET, Sup't of Nurses, The Babies Dispensary and Hospital of Cleveland, Ohio

The nursing work of the Babies' Dispensary and Hospital may be studied in the Central Dispensary where sick babies are sent, in the prophylactic dispensaries where only well babies are admitted, and in the district where the nurse finds the greatest field for service.

All of the nurses report once a day at the Central Dispensary, which acts as a clearing house for all of their work. Here are kept all of her records, except the branch dispensary charts.

The city is at present divided into eleven districts, and each nurse has charge of both well and sick babies in her own given territory. When she reports at the Central Dispensary she first of all looks over her charts of the preceding day and notes any new histories to be obtained or any special treatment ordered by one of the physicians. With the sick babies the frequency of the nurse's visits depends upon the condition of the child as found by a physician. If specific treatment has been ordered by the physician, it is on the same day telephoned to the nurse in charge of the case by the nurse in the Dispensary, who always reads and checks the chart of every baby admitted on that day. In order to save the valuable time of the nurses, two stenographers take and record on the charts all dictation of work in the districts.

The prophylactic dispensaries are only for well babies, and because the mothers of well babies will not go to a private physician just for advice, a financially better class of people are admitted with the understanding that if their infants are ill they must be referred to their private physicians.

These dispensaries are similar to what are called milk stations in other cities. Each dispensary is in charge of a physician and a nurse. They are open three mornings a week from 10 to 10:30. The morning hour was chosen, so that if an ill baby came, there would be time for it to go to the Central

Dispensary in the afternoon. The morning hour also gives an opportunity to telephone the milk orders into the Central Dispensary without interfering with the afternoon clinic. Each baby is weighed, examined and advice given and, if necessary, a milk order is written. Milk tickets can be obtained only at a Dispensary, but there are 60 milk stations in the city where the milk is sent and where patients can obtain their milk upon presentation of their ticket. All of the Babies' Dispensary milk is from a farm supervised by a Babies' Dispensary physician. The milk is sent to the Central Dispensary milk laboratory and from there delivered to the various stations. As the basis of our work is educational, the most of the nurses' time is spent in the patients' homes, instructing the mother in her own province just how best to care for her baby. Ninety-five per cent. of the milk is sent out in either pints or quarts in order that the mother may learn how to correctly handle and prepare the baby's food.

In the home the nurse needs every bit of patience, tact, and wisdom that she can command. She must know what all other organizations are doing towards the relief and education of the city's needy ones, so that she can best advise with the family. There is no limit to the possibilities in the home, but the nurse must have at least six months training in the baby work before she can grasp its full meaning, and she never ceases to discover new situations which demand all of her skill and knowledge. Few realize how great are the responsibilities of the district baby nurse or how wonderful are her opportunities for the betterment of the city.

Because of its broad significance and because of repeated requests for it, the Cleveland Babies' Dispensary and Hospital is going to give a special course for nurses in Infant Mortality work. Because of our co-operation with the Board of Health of Cleveland, who are now financing the branch dispensary work, we are at last able to organize the one-baby-in-a-home Boarding-out System.

A very important branch of the baby work was started last March when a special nurse was assigned to the "Blind Work." All eye cases of babies under three years of age are referred to the "Babies'" Dispensary and here are given to one of the two "eye nurses." This was planned particularly for the ophthalmia neonatorum cases and its value has been demonstrated many times. In connection with the Cleveland Health Campaign, exhibits are sent to every part of the city, also lectures and talks are given by physicians and nurses.

The nursing staff is composed of a Superintendent of Nurses, having charge of all the work; a Supervisor of District work, who spends her time instructing and assisting the nurses in the districts; and a Supervisor of Dispensaries, who teaches the nurses how to best conduct the Dispensaries and directs the keeping of their milk books and records. She also goes over the charts with each nurse once a month with the Assistant Medical Director. These meetings are of the greatest importance, as here the district nurse's knowledge of cases is given to the supervising nurse, and in turn she receives advice from the Assistant Medical Director. Weekly meetings are held by the Superintendent of Nurses with all of the nurses, and here special problems are discussed or speakers from other associations explain their work to the nurses. The nursing staff at present numbers 18, and their hours on duty are from 8 A. M. to 4 P. M., with necessary time at noon for luncheon.

Unless one has been in Cleveland I doubt if they can understand how independent is each organization, and yet how closely affiliated with every other charitable organization. The strongest of co-operation between different associations gives strength to each organization.

A few comparative statistics may be of interest, just to show that no matter how small the beginning, because of its great need any attempt towards the reduction of infant mortality must be rewarded by growth.

TOTAL NUMBER OF NEW PATIENTS AT DISPENSARIES

1907	568
1908	1,214
1909	1,315
1910	1,865
1911	3,574

TOTAL ATTENDANCE AT DISPENSARIES

1907	2,497
1908	6,256
1909	7,459
1910	10,285
1911	14,905

MILK REPORT

	Number Milk Deliveries
1907	8,946
1908	19,260
1909	24,229
1910	42,915
1911	70,775

NURSES' REPORT

	Number Nurses	Number Visits
1907	1-3	4,228
1908	3-4	8,503
1909	4	9,486
1910	5-7	15,218
1911	7-16	33,353

THE WORK OF INFANTS' MILK STATIONS IN RELATION TO INFANT MORTALITY

By MRS. W. H. BARTON, Supervisor of Milk Stations, Department of Health, New York City

Time was when cities depended upon private sources for their water supplies. Just as a growing sense of civic rights at length placed this responsibility in the hands of city officials, so today handwriting upon city walls seems to be proclaiming that responsibility for infant mortality due to gastro-intestinal diseases is being placed where it belongs—on the city—and that on a day not too far distant the municipality will give its citizens clean milk, just as now it provides clean drinking water.

Of the nine agencies dispensing milk in tenement districts, all but one owe their existence to philanthropic sources, and each stands for some specialty. The New York Diet Kitchen Association celebrates its thirty-ninth birthday this season, and for years dispensed certified whole milk free. About three years ago the diet kitchens stopped giving away 334,802 quarts of milk yearly and set a price of six cents. The clientele wavered a few months, then got abreast, then grew, then passed that of free milk. At the end of this first year of experiment, 49,215 more quarts had been sold at six cents than in the preceding year had been given away. This shows not only an increase of clientele by increase of population and an appreciation of clean milk by tenement people, but an amazing resistance to the shock of expense in poverty. Another pioneer, the Nathan Straus Laboratory, long since did the high service of arousing public attention to the need of clean milk for tenement babies and to the havoc that grocery store milk plays with their destinies. The Straus Laboratory stands for stock formulae and pasteurized milk. The tiny station founded by the Society for Ethical Culture in Essex Street Dispensary was the first to sterilize and modify milk *in stations*. The Nurses' Settlement next did the unique service of first and persistently holding out for individual formulae and home modification. All three of these agencies dispense milk the entire year. In 1908 the New York Milk Committee entered the lists with seven seasonal stations, dropped to four

yearly stations in 1910, and jumped to thirty-one this summer. This agency stands for tuberculin tested milk at seven cents a quart, home modification, and publicity. Three more stations occupying good locations and having plenty of applicants and nurses did not work at full capacity this season because they lacked good organization. It remained for the city itself to demonstrate that the $40,000 appropriated for municipal milk stations by its Board of Estimate and Apportionment in October, 1910, is the most permanent and, therefore, the most serviceable guardian of tenement babies.

The prime function of milk stations is to keep babies under expert supervision. To keep the well baby well becomes the great opportunity of the station nurse. During heat waves, while a large percentage of new babies enter sick, clinics are held only for babies sick of diseases due to bad feeding. Practically the rest of the year the nurse deals with fairly well babies. Relieved of the emotional strain of combatting disease, she has the opportunity to advise, teach, and demonstrate in the cheer of healthy babies.

The distribution of milk stations throughout New York merited and received considerable attention. Where statistics on infant mortality due to gastro-intestinal diseases in years past flagged special need; where proximity to an existing station would not inhibit the work of another; where pallid, under-fed, badly-fed babies roll most thickly on the sidewalk—such has been the general plan of distribution. Recreation piers, parks, settlements, hospital clinics, ground floor stores or tenements on squalid, thronged streets has been the general plan of situation.

Maximum days at busy stations begin at six o'clock, when free distribution draws an ice line two and three blocks long. It ends when the matron and nurse, pallid with exertion, leave their districts at sundown, an afternoon of instructing in her own home every mother who helped throng the station all the morning when the doctor gave out new formulae. Typical mornings begin with the advent of the milk man, whose business it is to leave the day's supply of milk properly iced for the matron, who arrives at eight o'clock. She usually finds a picturesque throng of children waiting for their hot empty bottles to be exchanged for cold, filled ones. Before nine o'clock, deep-breasted, broad-hipped, patient-faced mothers begin to assemble, all armed with babies. At nine the doctor and nurse begin the routine of admitting new babies and dealing with "regulars," these latter being weighed weekly, while the mother is re-advised. The care given a new baby

is physical examination, weight, formula for bottle and advice for breast-feeding, while each sick baby receives this same care with treatment added. The doctor fitting formulae to individual babies; the nurse explaining this formula and demonstrating by use of station utensils how to prepare it; the nurse's assistant, or matron, interpreting advice and weighing babies; the dispenser selling clean milk—such is about the routine practiced daily in milk stations. Whatever each station may *stand for,* the matter of free advice to mothers and weekly weighing and supervision of each baby enrolled remains about uniform throughout New York.

In newly organized stations it is doubtful if much educational work of real value among tenement mothers has been done this summer. From three different authorities came the opinion that the excellent results were obtained by good nursing and good care in the stations, rather than by educational work really grounded in the homes. Three months of the year being intense, tragic in their effects, and the effort to control this loss of life being almost superhuman, with the advent of cool weather comes the opportunity of the station nurse's year, to devote her energy and her knowledge to this most important phase of station work, education of mothers. Barring the three summer months, the nurse should spend the rest of the year steadily, daily training the most intelligent mothers in her district, so that when the next summer's heat wave comes, she will have the moral support and the comfort of women trained to pass knowledge on to other mothers and to be depended upon to bring their own babies safely through, while she herself is left free-handed to deal with emergency cases, newcomers, and the general horde of the ignorant.

"Madame," said a station doctor this summer, "I'm putting your baby on this formula, and I want you to keep him on it twenty-four hours."

"Oh, doctor!" cried the mother, reproachfully, "I can't keep him on it twenty-four hours—he'd fall off!"

The Italian mother who ties a string of coral beads around her badly-fed baby's wrist to make him get red blood; the German mother who stows a feather pillow over her sleeping infant during torrid July days; the Polish mother who packs her baby's soiled clothes in the bottom of the tub, sets him on them, and then sozzles him with this water, for a bath; the Jewish mother who tries the formula that saved Mrs. Bobscheffsky's baby's life on her own child,—to its extinction—, all require infinite patience, infinite re-instruction on the part of the nurse.

Another ingredient of the good station nurse is tact. One busy July morning at a Department of Health station, the Jewish mothers rioted to "go by doctor." The nurse controlled the broil by introducing the checking system. "You'll soon need a carriage entrance," prophesied the rabbi, as he picked his way through a block of baby carriages in front of this same station, which enrolls over seven hundred infants and boasts of ten pairs of robust twins.

Another difficulty the nurse meets is getting mothers to come regularly to have their babies weighed weekly.

Let a baby once begin to "pick up," or stop crying, or hold its food, and back the mother relapses to her rocking chair, her ironing board, and her rear window gossip.

"If the baby 's gitten on, w'at 's the use o' me bringen 'er in?" a tired mother surfeited with toil and offspring will checkmate all appeal to "come tomorrow and have your baby weighed."

If patience be the chief virtue of a station nurse, her prime qualification is knowledge of infantile diseases and ability to detect their symptoms. She must be ever alert for suspicious cases and prepared to send them to the nearest dispensary, never forgetful of the havoc that one case of contagion may play with a milk station.

It seems as if milk work were going to evolve a new type of nurse; one not only trained in the art of kindliness and of doing things with her own hands, but also gifted with the art of demonstrating and of teaching others what she herself knows. During heat waves, when from fifteen to twenty-five new mothers with as many babies sick of gastro-intestinal diseases enter a station day after day, however willing the nurse may be to prepare every baby's feeding, since even an expert modifier needs one hour to teach modification of one baby's food in the home, the afternoon is hardly long enough for her ever to catch up with the morning's work. Persistency in preaching the gospel of "three c's" ("Keep milk cool, covered, and clean"); ingenuity in prevailing upon mothers to come for class instruction; and getting them, the faculty of demonstrating the need of cleanliness, accuracy, and care in milk modification constitute different qualifications from those exercised by the trained nurse who will, perhaps, be recognized at once if designated as "a good worker." Leastways, this summer's work has proved that those nurses with a bit of the schoolma'rm in them get better results with tenement mothers than those nurses willing to do, instead of *"getting things done."*

Some way whereby immediate relief for destitute babies can be obtained by station nurses should be worked out. The nature of the disease is such that a baby is swept off in a few hours, when a little help at the right moment might save his life. This matter of immediate relief proved that all of New York's charity organizations had met a new problem in relief work. Giving a hungry baby milk is quite a different matter from giving a needy baby clothes. Exposed to the air, a baby may survive for days while "investigation" is being made; but a starving baby or one being made sick by grocery store milk because his family is too poor to pay six or eight cents a quart for certified, usually goes out within a few hours. If a baby is sick, New York abounds in hospitals where his mother may put him. But a baby that is hungry and unfortunate enough to have neither parents nor a relief society able to give him a bottle of milk immediately is an expense to the hospital that feeds him and to the city that buries him. It is much better that these babies be cared for at home. Although all charity agencies have made special effort to co-operate with milk stations this summer, there is still much to be done in supplying quick relief for urgent cases.

First of this season the Division of Child Hygiene of the Department of Health organized the Association of Infants' Milk Stations of New York City, the object being to establish some uniformity in the system of keeping station records; to advance publicity; and to avoid duplication of records and of cases. This clearing house of all obscure cases, uninvestigated deaths, and of general information about milk stations in New York has done good service.

When the Department of Health organized New York's fifteen milk stations this year, it took its stand for pasteurized milk at seven cents a quart (merely housing a pure-milk dealer, who dispenses); for modification of milk in homes; and for individual formulae. And contrary to considerable prophecy, it proved itself no novice in milk work, because its growth had been gradual and healthy. For several years it has been furnishing a doctor and nurse in diet kitchens each summer, and holding free clinics for babies sick of diseases due to bad feeding, on recreation piers and in the offices of charity organizations. So that when its turn came to jump into milk work, it had a number of doctors and nurses already well trained to go ahead.

The city is better prepared to assume responsibility for clean milk and the education of mothers in tenement districts than is any philanthropic agency, because the city can legally

control milk supply; has its own doctors and district nurses; has the prestige of being already known and trusted throughout tenement districts because of past good service rendered by its doctors and nurses; and has the *authority*. Making professional calls in tenement houses, a nurse belonging to a private agency carries little authority with her, and, therefore, often has to gain her ends by wheedling and persuasion. If unknown to the district, she runs the risk of being mistaken for a peddler and of wasting energy in establishing her identity; while a nurse certified by the city has only to show her badge and repeat instruction. The authority of a badge representing officialdom in the face of an obdurate mother obstinately compromising the life of her baby has oftentimes accomplished more to save that baby's life than hours of coaxing and goblets of medicine. With the city, dispensing of clean milk to tenement babies is neither a fad, nor a fashion, nor a sentiment. It is business. With all due allowance for municipal politics and "graft," the city is able to run milk stations not for the glory of any one society, but by force of hard, every-day effort. Any private association, being always somewhat dependent for funds and for nurses on the whim or the experiment of some philanthropist, is necessarily unduly concerned to amass records and reports. Compelled, for very existence, to display large results in a comparatively short time, among private agencies a tendency often arises to let care of records overtop care of babies. This seasonal spurt, however much good it may do by quickening public interest and support, is hardly comparable to the good, steady effort of city employees representing a large institution such as a city board of health is, and pushing the entire year.

On the other hand, city employees have handicaps of their own. They, too, must be able to display large results and ponderous records—around budget time. They face the cold proposition on paper of proving to their board of estimate that as for city milk stations, *business has been done*. Their records and statistics will be attacked and dissected by antagonistic parties. They will be left hanging in a position to *prove* more than any private society has to. Any city employee responsible for its milk stations stands more or less in the limelight, moreover, and what is the city's business is every man's business and subject to a ferociousness of criticism that would never be tolerated or applied to a private agency, however much it might warrant criticism. The wheels of departmental machinery being apt to crush initiative out of city employees, individual good work is often dimmed by

the lack-lustre of the average. Handicapped even thus heavily, if the effort of city employees in milk stations becomes at times faint-hearted, unlike the spurt of private agencies, it has the good value of being steady and yearly. In city stations supported the entire year, the hold on babies' lives is not relaxed nor education of mothers suspended during winter months, as it is in those stations supported seasonally by philanthropists. A city station kept open the entire year has another immense advantage of seasonal stations, in that its doctors and nurses become established facts in the neighborhood. If they are the right kind, they become liked, thus keeping the station's clientele together during "off" seasons. The influence and the popularity of a station's officials can hardly be overestimated in reckoning the prejudices, captivating the preferences, and holding the attendance of tenement mothers.

During two and a half months this summer, nine agencies dispensed considerably over half a million quarts of pure milk. The doctors, nurses, and matrons of the two largest agencies, consisting of forty-six out of seventy-nine stations, from May to September first made 21,537 visits in tenement homes. September first, about 11,965 babies were under station care, and September fifteenth the lives of over 1,100 babies had been saved, as compared with the death rate of 1910.

Last month the Board of Estimate and Apportionment made appropriation for fifty-five milk stations in Greater New York next year. This not only enables the Department of Health to maintain its fifteen stations, but also to take over twenty-two established by the New York Milk Committee this summer, as well as to organize eighteen new ones. This stride takes New York's stations past the stage of a municipal experiment, up onto the plane of any other big department of city government.

INSTRUCTION IN INFANT CARE

(A) LITTLE MOTHERS' LEAGUES

By S. JOSEPHINE BAKER, M. D., Director of Child Hygiene, Department of Health, New York City

In the efforts to reduce infant mortality, the individual mother has been the direct point of attack. It is only through her and by her efforts that we can achieve the ultimate results of our efforts. Realizing that the causes of infant mortality often arise in the prenatal period, we have already turned our attention to the important factors which have a tendency during that time to influence for good or evil the life of the child after birth. The development of eugenics, the control of midwives, the restriction of physical labor during pregnancy, the movement for improved hygienic conditions and the provision of suitable nourishment have all been brought to our notice, and certainly progress has been made in this direction. In true preventive work we must not only follow out more closely and thoroughly this line of reasoning, but we must consider a factor which bears upon this problem in a vital way. If in educating a child we must begin with its grandmother, so in saving infant lives we must begin with the mother, while she is yet in childhood herself. A second important factor is that no one who has shared in the work of baby saving in our large cities can have failed to notice that the care of the baby is often delegated to one of the older children in the family. The two points of view, when seriously considered, are sufficient reasons for turning our attention to this phase of the problem and the formation of a plan to combat the evils which may so clearly be seen to rise from the situation.

Poverty places no restraining hand upon progeny. With the rapidly increasing birth rate of our alien population, is it any wonder that the overworked, overtired mother gladly delegates the care of the last or the next to the last baby to the little sister who but a few years ago was the "first baby" herself. Yet the situation presents a very real problem to the sociologists and public health workers, who have discovered that "being a baby is the most hazardous occupation on earth."

The little mother has her responsibilities thrust upon her, whether she will or not. It is really one of the saddest commentaries upon our boasted twentieth century enlightenment that the full care of so many of the babies of our cities is placed in the hands of these real little sisters of the poor. Hardly entering upon their 'teens, some of them merely babies themselves, the newest little brother or sister takes the place of the doll of more fortunate children, and they receive their burden of vicarious motherhood as an accepted duty; it is just part of the regular order of life to them. In fact, with an optimism that is enviable, it is a matter of pride to the little mother that she has arrived at the eminence where she can exhibit "her baby" to the other less gifted and less important children of the neighborhood.

Every girl child has the maternal instinct somewhere in her nature, and when it is prematurely brought out it finds expression in well-meant, if sadly misdirected, form.

In New York City the work of conserving the health of school children is carried on under the control of the Department of Health, by the same staff of doctors and trained nurses who, in the summer, bend all of their energies in the strenuous campaign to save the babies. This combined work has offered an opportunity to deal directly with the girls in the schools, and has led to the formation of the "Little Mothers' Leagues."

Anyone who is familiar with our foreign population knows the astonishing rapidity with which the children become accustomed to our customs and acquire our language. It is little short of miraculous to watch the transformation of the shy little foreigner, with her few words of halting, broken English, into the self-possessed, self-reliant child only two or three years later. The fathers move more slowly in their progress toward a command of our habits and speech, but a forced contact with the world aids mightily. The mothers, with the traditions of a limited home life and the burdens of family care, hardly progress at all, and it is not uncommon to find many of them, after years of living here, unable to speak our language, and unwilling to change their habits or manner of living. The children act as interpreters and are thus often the arbiters of the family destiny. Eager to impart the knowledge they have so easily acquired, their word has the weight of authority when it concerns the manners and methods of the new world.

Not long ago I visited one of the public schools in New York where the children were practically all foreign born, and

where many had been in the country but a few years, yet almost without exception their speech was free from any trace of foreign accent and their English would have put to shame many of our native children.

Here, then, in our campaign of baby saving is one of the vulnerable points of attack. If these girls, the little mothers of their small brothers and sisters, are unwittingly one of the causes of infant mortality, why not make them one of the factors in reducing it?

England has recognized the necessity of training the girls in the schools so that they may more properly perform their functions as baby care-takers, as well as ultimately be more fitted to assume the duties of true motherhood. There the work is carried out as part of the educational system. In this country Boards of Education have been slow in realizing the importance of such a course, and the duty has and will be left to Boards of Health until such time as educators can be made to realize that courses in hygiene should be made to include that vastly important subject: "The Hygiene of Infant Life."

We recognize the need of trade schools, we embrace in the curriculum training for almost every profession for women except the predominant one—motherhood. Two per cent of our girls may take up the professions, ten per cent may go into the shops or trades, but the majority will be the mothers of the next generation. Can any education be more vital individually, or more important to the whole nation, than that which gives to a mother the knowledge to keep alive and well the child she has borne?

In 1908 the first tentative step in this direction was taken by the Department of Health of New York City. In the spring of that year the school inspectors delivered lectures in certain of the public schools to the girls and their mothers on the "Care of Babies." In 1909 the lectures were repeated, and in some instances practical demonstrations of baby care were given by the doctors and nurses. In 1910 a more comprehensive step was taken by the formation of Little Mothers' Leagues. After the preliminary lecture, which was given during May in each public school in the city to all girls of twelve years and over, the doctor announced that a League would be formed of all girls who were willing to act as volunteer aids of the Department of Health in its efforts to reduce infant mortality. Leagues were established only in those parts of the city where the need was clearly evident. A certificate of membership was issued to each girl; after attendance at six

meetings the member received a silvered badge. The girls elected their own president and secretary, the doctor and nurse serving as Honorary President and Vice-President.

During 1910 seventy-one leagues were formed. In 1911, following the same program, we have had one hundred and eighty-three leagues, with a membership of approximately twenty thousand girls.

Throughout the summer a meeting is held each week, the schoolhouse, recreation centers or convenient halls being used for meeting places. The department furnishes the equipment for each league, including scales for weighing the babies, gas stoves, boilers, dishes, measuring glasses and spoons for demonstrating the methods of milk modification, bottles and nipples for lessons in care and cleanliness, bathtub, bath thermometer, baby clothes, rubber sheeting, towels, boric acid, powder, etc., for teaching infant hygiene.

Each weekly lesson takes up some particular phase of baby care. The doctor gives a short, simple talk; then, with the nurse, demonstrates his subject. Our outline embraces the importance of breast feeding, hygiene of the home, cleanliness, ventilation, etc.; hygiene of the infant, including bathing, dressing, and value of fresh air; infant feeding, with methods of milk modification. The lessons are simple and practical, and the children are required to carry out each part of the work. Babies are not lacking for demonstration purposes, for nearly every little mother brings her own charge to the meetings, and often the rivalry is great to have "my baby" chosen as an object lesson of health and right living.

The members write and act little plays, the play always hinging upon some newly-discovered way to keep a baby well. The real iniquity of lolly-pops and dill pickles as baby food is being uncovered, and these and kindred baby pacifiers of former days are being relegated to oblivion.

During this past summer the members have kept daily records of the many ways in which they have helped to save babies. The following are samples from hundreds of equal or greater merit:

"The lady who lives in the same house as we do has a baby boy, 9 months old. Night after night I hear him cry. One day I asked her why he crys so. She said she did not know. I asked her what she feeds him and she said on grocer's milk. I soon know why the baby cries so; it had stomach trouble. I asked why she doesn't keep the milk on ice, and she says she cannot afford it. So I gave her the address to the milk

depot. I told her to tell the person in charge that she cannot afford to buy ice and they will try to help her.

"The day after she went to store and the doctor told her the baby had stomach trouble. He gave the baby the right milk and a ticket for ice. Since that very day the baby drinks the milk, he sleeps during the night as if there were no baby. She thanked me very much and said I have saved a child from suffering pain and a mother from becoming ill, because when people do not sleep at night they usually become sick."

"One day when I was on the pier with my little brother, a man who took care of a baby gave it a bottle of coffee. I saw the bottle was dirty and told him the baby would get sick. He said to me, "Mind your own business." I said I belong to the Little Mothers' League and know how to take care of babies. The next time I saw the baby sleeping with a lolly-pop in his mouth, the flies were flying on it, but my little brother was covered with a veil and I fanned him. The next week I saw the baby and he looked sick. I told the father to go to the doctor. Now he took my advice, and when he came back he said the baby had summer complaint, but in three weeks the baby was well again. I think the father will never again give the baby those things."

"It is half-past six and my little brown-eyed Dorothy has awaked, and the first thing I must do is to give her a nice cool bath, and my! how little Dorothy can kick. Now I will put on her soft, clean clothes. My little Dorothy then must be fed on barley and milk. I will take her to the recreation pier—how the baby is enjoying it! She seems to be hungry; come, we will go home, eat, and come back again. When I got home I undressed baby and gave her another bath; then I fed her again and she went asleep. When she awoke up I took her for a walk through the park. It was getting toward evening and the sun was going down, so I walked home with baby slowly."

Compositions have been written by these girls that would do credit to many a student of baby care. The members also helped by canvassing tenements to refer mothers to the Infants' Milk Stations.

The leagues have been successful since their inception. No millennium has been reached, and the work is yet in a formative stage, but New York City now has an army of twenty thousand little mothers, equipped with the knowledge that

means not only baby saving now, but intelligent motherhood for the next generation, and I believe that no single feature in our efforts to stop the annual unnecessary slaughter of babies has ever offered such potential possibilities.

From the very nature of the work it is impossible to record results statistically. From January first to November first, 1911, there have been 1,324 fewer deaths under one year of age in New York City than occurred during the same period of 1910. The widespread campaign of education, the work of the visiting nurses in home instruction of mothers, and the Infants' Milk Stations have all contributed to this result, but from practical evidence it is clearly evident that the Little Mothers' Leagues have been an auxiliary of importance in this remarkable showing.

The training of girls in the essentials of infant hygiene and care has three direct results. First, in assuring more intelligent care of their little charges; second, as an educational influence in the family; and, third, in fitting them for the duties of motherhood.

Perhaps the most interesting feature of the work has been the spirit of the girls themselves. No self-consciousness, no thought other than that it was a lesson to be learned, perfect poise and serious purpose—just part of the business of life itself, and pretty good play into the bargain.

One of the most progressive of our leagues, under the leadership of Dr. Henrietta S. Tienken, has adopted as its motto, "Keep the Babies Well." Its "war cry" is "Down With Nipples"; its "yell":

"Who are we? Who are we?
Little Mothers' League of the H. D.
Saving babies is our aim,
Little Mothers' League is our name.
Goo, goo, ah! L. M. L."

And its song, to the air of "Glory, Glory, Hallelujah," is as follows:

"Our League of Little Mothers is a very busy band,
For saving little babies we use every means at hand.
We wash them clean from head to foot,
Don't keep them in the sun,
So they're fat and lovely every one.

CHORUS:

We are busy little mothers,
We are careful little mothers,
We are happy little mothers,
Working hard to keep the babies well.

"We never give small babies fruit of any single kind,
To give them some cool water we should always bear in mind;
The milk we buy is sweet and pure,
F'or bottles clean we strive,
'Cause we want to see our babies thrive.

"If ever it should happen that the baby should get sick,
We'd stop all milk at once and call the doctor very quick;
Then away with dirty nipples, pillows hot
And dresses tight,
'Cause we want our babies strong and bright."

If there must be "little mothers," let us have intelligence and joy, instead of ignorance and care. Our scheme of civilization has gone askew when we acknowledge that children must forego their childhood and take up the burden of life before their time. The "Little Mother" should become a myth. The very title is the direct antithesis of childhood. We should adjust our economic conditions and give her back her dolls. This is our next problem. But in the meantime, let us make her an ally instead of an enemy in saving the babies (she is already that at heart), and, above all, let us educate her to become that most wonderful of women—the wise mother.

INSTRUCTION IN INFANT CARE

(B) DAY NURSERIES

MRS. REGINALD T. FOSTER, Baltimore, Maryland

In our rescue work in Baltimore we have been made urgently aware of the *necessity* for instruction of the mothers in the care of their babies, beginning as soon as possible after pregnancy is realized.

It is to the hospital that one naturally looks to carry on this instruction, as it has greater facilities for proper care of mother and infant than their homes can afford.

A course in teaching those who register in the obstetrical department of the Johns Hopkins Hospital has already been begun here, under the auspices of the Association for the Prevention of Infant Mortality. The other hospitals have not yet reached the social viewpoint which enables them to co-operate in this undertaking.

The work is conducted by a social worker, but she feels that her efforts should be supplemented by those of a nurse. Her work is limited now to advice and oral instruction, but it should be extended to include demonstrations and the actual handling of the baby. Here is where the hospital can continue the instruction to better advantage. Opinions of those in charge of hospitals and maternity wards vary as to the feasibility of this plan. It is objected that *they haven't enough room, that no one has the time, and that there is a possibility* of infection of healthy babies by diseased mothers. None of these objections are insuperable when the *will to do* exists. To *instruct* such classes would be as helpful to a senior nurse as her practical experience, and as for room, a little corner of the ward in which the pregnant patients are waiting would do for a beginning. The danger of infection could easily be controlled when the mother is known to be diseased. As much as possible, the theoretical teaching should be supplemented by actual participation in the care of the baby.

I feel very strongly that *familiarity* with their babies would encourage many unmarried mothers to keep their babies and care for them, instead of confining them to institutions or boarding them. We all know that most young mothers are actually afraid of the little squirming, screaming creatures which they do not understand.

The Johns Hopkins Hospital has made it a rule that the mothers must nurse their babies while in the hospital. If the baby does not gain as it should, the mother is kept until the baby is in good condition, or, at least, is *above* its birth-weight. Other hospitals which have been asked to follow the same plan have replied that it is impossible. In these hospitals the mother is allowed, upon payment of a certain sum of money, to give her child to an institution, without even looking on its face. A prenatal course in the care of the baby might arouse a sense of responsibility which would result in keeping mother and child together. In the Johns Hopkins Hospital the patients discharged from the hospital are visited for one year by a doctor, who calls in the visiting nurse when necessary. This is a continuation of the work of the Association for the Prevention of Infant Mortality. This reaches a large number of patients who have no objection to being followed to their homes, chiefly married women.

But what is one to do for the illegitimate babies? And these constitute 25 per cent. of the babies born to mothers at the Johns Hopkins, a hospital which is said to have a very small proportion of such cases. Doctors feel that statistics on this subject are unreliable, because a number of such girls represent themselves as married. It is safe to assume, therefore, that the percentage is even larger. Where there is a Mothers' and Infants' Bureau, a large number of these girls are followed up with the same advice and instruction as the married women. In the absence of such a bureau, homes of detention, or so-called "rescue" homes, should be utilized for this work.

In the Guild of St. George we have had no classes, but each girl has the care of her own baby, bathes it, prepares various simple modifications, and, above all, hears constantly emphasized the importance of breast-feeding. The question has been asked whether, "under ordinary circumstances, the child of the unmarried mother would have a less favorable chance for life than the child with the safe and secure home in which to grow up," and one does not hesitate to answer "yes." But when the unmarried mother can pass from *six* to *eight* months of her time in a home where nourishing food and work and exercise in the proper proportions abound, and can receive careful instruction in the care of her infant, the child starts life with a far better chance than many legitimate children with socalled homes. Can we not induce our hospitals to give these advantages to the mothers, if only for a few months?

In brief, then, my suggestion would be: a socially trained nurse, employed by this society, should visit the hospitals regularly, to obtain lists of their registered obstetrical cases. These should be visited at their given addresses for the purpose of instruction. In addition to giving instruction, she should, of course, be in touch with the proper agencies to remedy home conditions where they are unfavorable and to place unmarried girls in the proper environment.

Some hospitals admit patients earlier in their pregnancy than do others, but patients should be admitted at least two months before delivery. Here the instruction can take the form of demonstration and practical handling of the baby. The necessity for making room for new patients shortens the time of the post-partum stay in the hospital to fourteen days, or even ten days in some hospitals, and the mother is fully occupied in making the acquaintance of the little scrap of humanity which has been sent to her to cherish. Upon the patient's discharge the nurse should again take up her visiting and instruction, continuing it until the baby is a year old, or longer, if it seems necessary. This would seem to afford a *continuity* of instruction which cannot be attained by trying to assemble the mothers for lectures and classes. They are too busy or too indifferent to leave their homes to be taught—let us take the teaching home to them.

For this reason it would seem that Day Nurseries do not at present offer a promising field for the instruction of mothers. The mothers leave their little ones at the Nursery at seven in the morning, returning to get them at half-past five or six. Little time have these working women for the care of their young ones! But in so far as children are cared for at the Nursery, courses of instruction might be arranged for fairly well-to-do mothers, who could learn by assisting those in charge.

No institutions require more careful supervision than Day Nurseries, where the opportunities for giving the babies a better environment than their own squalid homes are limited only by the means that can be commanded. For children over a year old up to the kindergarten age, Day Nurseries would seem to fill a necessary gap, but it makes one's heart ache to see a baby a few months old struggling to maintain life on artificial feedings, while the mother, with painfully congested breasts, is away, working to maintain a bare existence.

It is Miss Addams who tells of seeing at midnight an office-cleaner, scrubbing floors, while the milk which should have fed her baby dripped down upon her clothing. Such unhappy

conditions we cannot hope to remedy instantly, but we can, at least, see a great light dawning. Everywhere the cry is, "Begin your work for the next generation now! Save the child!"

Let this Association endeavor to show the *hospitals* what exceptional opportunities they possess, and strive to secure their active co-operation in this most necessary instruction.

NUMBER OF OBSTETRICAL PATIENTS IN VARIOUS HOSPITALS IN ONE YEAR

Baltimore—Johns Hopkins—Inside Service		450
Outside "		500
Baltimore—Maryland Univ.—Inside Service		401
Outside "		800
Boston—McLean Lying-in—Inside Service		829
Outside "		2,007
Boston—McLean Lying-in—Inside Patients—		
Married	713	
Unmarried	116	
	829	
New York Lying-in—Inside Service		2,700
Outside "		3,298
Married	2,021	
Unmarried	254	
	2,275	

INSTRUCTION IN INFANT CARE

(C) MATERNITY HOSPITALS

By MARTHA M. RUSSELL, Sloane Maternity Hospital, New York City

In preparation for the report on this subject, Miss Russell sent the following list of questions to forty superintendents of training schools for nurses:—

1. What is the average number of maternity cases per month in your hospital?
2. (*a*) How long before confinement are they admitted?
   (*b*) How long after confinement do they stay?
3. Do you rely on the effect of the order and cleanliness of the hospital as an influence on the patients, or is some definite instruction undertaken?
4. Is any social service work done in connection with the hospital?
5. Is there an out-patient department where patients can be followed up after discharge?
6. Which do you think offers the better field for the instruction of the mothers, the dispensary or the hospital, and why?
7. Can you suggest any method of practical co-operation between your hospital and the Association for the Prevention of Infant Mortality?
8. If you think active co-operation unwise, will you please give your reasons?
9. Is there any practical means of interesting your nurses, graduate and pupils, in the work the Association is trying to do?

Replies were received from seventeen hospitals. The information contained therein is summarized in the following report:—

REPORT OF REPLIES RECEIVED FROM HOSPITALS REGARDING WORK IN PREVENTION OF INFANT MORTALITY

(1) The replies received to this question showed that about a *thousand* cases a month passed through the wards of the hospitals making the returns.

(2) All but one of these hospitals keep their patients *twelve* or *fourteen* days after confinement and do not admit them till labor is about to begin, unless the patient needs treatment. One hospital tries to keep them for *twenty-one days*, but reports, *"Many are unwilling to stay so long."*

(3, 4, 5) All the smaller hospitals, (*i. e.*, those reporting less than fifty cases per month) give a demonstration of bathing an infant and some instruction in preparation of food if child needs artificial feeding. Two of the larger hospitals report the same routine practice and *all* the large hospitals seem to make a systematic effort to put patients in communication with suitable clinics or visiting nurse associations, so that patients may have the opportunity to learn proper methods of infant care.

(6) Opinions seem to be about equally divided as to whether the *hospital* or the *dispensary* offers the best field for getting hold of the mothers. Those who prefer the hospital, do so because they say that the women have an opportunity to see *there* the results of constant application of the principles taught; those who prefer the dispensary give as their reason that the women are unable to adapt the principles taught in hospitals, with all the usual hospital paraphernalia, to use in their own homes, while a *dispensary* doctor, aided by a visiting nurse, meet the woman in her own environment and are able to give her directions that she can follow in her daily work.

(7, 8) Most of these replies indicate a willingness to cooperate in any feasible manner with the Association for the Study and Prevention of Infant Mortality, but no one suggests any *definite* plan. Several think the best way of working is through the district nursing organization of their cities.

(9) Some of the hospitals reporting say that their pupils go out to the tenement-house districts for a part of their maternity experience and all agree that the contact with actual conditions quickens the interest of the nurses in the efforts to help work out the problem of hygienic living for the poor. Several have lectures for their pupils on infant mortality and others express a desire to establish some such work.

Alumnae Associations of Graduate Nurses frequently plan for one or more lectures during the season.

INFANT MORTALITY*

By M. LOANE, London, Author of "The Queen's Poor," "Neighbors and Friends," Etc.

Classification of Causes.
Division of Responsibility.
Circumstances in which normal children will be born.
The later life of "saved" infants.
Practical Difficulties of the working-class mother.
In connection with Ante-natal conditions.
    Need of advice and instruction.
    Need of leisure.
    Need of father's help.
    Need of family help.
    Illegitimacy.
    Reckless marriage.
    Bad housing.
Waste of infant life not all due to poverty or lack of leisure.

Attempts to classify the causes of excessive infant mortality are apt to result in cross divisions and confusion rather than in the enlightenment of public opinion. The most obvious and immediate causes of this grievous waste of life appear to be poverty, ignorance, neglect, illegitimacy, bad housing, lack of sufficient medical and nursing aid, preventable disease, immaturity and congenital defects. A very brief consideration shows us that these causes are in themselves partly mental, partly physical, partly moral. Neglect is sometimes wilful, sometimes inevitable. One mother is ignorant because she is stupefied by excessive work, another because she is lazy and apathetic. Lack of medical attendance quite as often results from inability to set any real value on it as from inability to pay for it. Poverty alone cannot destroy infant life: if it could, the poorest classes in every country would not increase and multiply and remain capable of hard physical work. As far as most infants are concerned, their injury or destruction rarely has one definite, isolated origin.

A little further consideration shows us that, while some of these causes are chiefly connected with faulty individuals, others may be traced to defective social arrangements, and if

* Read by Miss Edna L. Foley, of Chicago.

we would check this national loss, responsibility must be rightly divided and enforced.

Responsibility for the preservation of child life rests in the first and highest degree upon the father and mother who have called that life into existence; secondly, upon the family as a whole; thirdly, upon local government; last of all, upon the State. If infant mortality is to be brought within due bounds, public authorities must play their part, but their part alone. If either local or State government grasps at, or even voluntarily accepts, what is plainly the duty of the individual and of the family, the result may be even more disastrous to the social organism than neglect of those obligations which are rightly its own.

It is the duty of the mother to nurse and tend her child and to acquire such knowledge and self-control as may be needful for this purpose.

It is the duty of the father to provide all the material means, to give moral aid and support, and in all times of special stress to supply such help as he can without interfering with his primary obligation as the breadwinner.

It is the duty of the family as a whole to give such assistance, encouragement, protection and advice as they themselves have received, or suffered from not receiving.

It is the duty of the local government to insure that the efforts of the parents and the family to preserve child life are not stultified by bad housing, bad drainage, bad water supply, or any similar conditions beyond the control of individual citizens.

It is the duty of the State to insure that infant life shall not be wasted by the apathy, indifference and shortsighted economy of the local government; or by adulterated food and the uncontrolled sale of patent medicines; or by the bad moral and intellectual education of the parents; and that national health shall not be deteriorated by needless toleration of unwholesome conditions of work, whether among men, women or children. It is also bound to insure that the true and necessary doctrine of supreme parental responsibility is not interpreted in such a way that children shall be allowed to feel the full effects of their parents' extreme poverty, ignorance or depravity.

In the light of modern science, it is also the duty of the State, working in conjunction with the local government and the family, to do its utmost to insure that no considerable number of the children born shall be the offspring of diseased and feeble-minded persons.

In all our efforts to reduce infant mortality, the first thing to be remembered and the last to be left out of sight by all practical people, by all who see life clearly and see it whole, is this: When the circumstances of daily life and daily work are sufficiently good *for* men and women to remain strong and healthy, strong and healthy children will be born and will live. "Problems" of child rearing are nearly all connected with a feebleness of constitution which, under satisfactory conditions of social life, is extremely rare.

All this weighing and measuring and testing and dosing and artificial heating of babies is not natural, and is not a state of affairs which should be received with any feeling but that of profound dissatisfaction. We ought not to prolong the conditions under which it is inevitable that a large number of delicate infants should be born, and then, with enormous expense and trouble, create an environment in which it is just possible for them to live. We want health as well as life, and this can only be the natural birthright of the children of normal parents living a decent life in a decent home. We want to supply an amount of knowledge, an amount of help, and a public opinion sufficiently educated, to prevent ordinary children from being killed or injured; we must not make it our principal aim to save delicate infants, and our habit to treat every infant as if it were delicate. It is a moral duty to try to prolong the life of every child born into the world, but we must not lose sight of the facts that success in this endeavor is not pure gain from the standpoint of national health, and that a very large proportion of those "saved" in infancy will never live to carry out their full duty as citizens.

In order to be convinced of this, consider for a moment the delicate children of the middle and upper classes; their circumstances are more generally favorable than we can hope to see among the poorest classes, and their subsequent history is more easily traced. Look back upon the delicate children who were your contemporaries and ask yourself what has become of those children, reared with such care and difficulty? My own experience is this: the delicate boys who grew up and tried to lead an ordinary life either died before they were thirty or sank into invalidism; the delicate girls only attained middle age if spared the strain either of matrimony or earning their own living. Those who married, and those who were compelled to work, all died young. One mother told me: "It is very easy to bring up children *if you get a good baby to start with*," and that is, indeed, the first and most indispensable condition.

The practical difficulties of working class mothers are very great and often meet with scant recognition and sympathy. Formerly when a woman lost her child the general attitude was one of pity; she now meets with equally indiscriminate blame. Her wholesale critics do not seem to realize in what a large proportion of cases the children were literally "born to die," and neither science nor love could save them. There is no sufficient appreciation of the personal tragedy involved; no sorrow for the woman who has vainly endured what our English prayer book truly calls the "great pain and peril of childbirth," who has spent days and nights of fear and hope, only to see a frail, suffering little being pass out of existence, and soon pass out of all individual memory but her own. The presumption appears to be that every child is born healthy, and would remain healthy if it were not for the invincible ignorance of its mother.

The importance of ante-natal conditions has long been realized by working-class mothers, but it is only of late years that sufficient attention has been given to the matter either by scientists or practical philanthropists. Ask any woman, however uneducated she may be, why she has lost one of her children, or why there is one delicate child among a vigorous family, and she will most commonly ascribe the misfortune to some unfavorable influence, mental or physical, suffered before birth. Perhaps the husband had been out of work for some weeks and she either "went a bit short" or undertook duties that were beyond her strength. A peculiarly pathetic reason often given is: "That was the time when I lost my mother. I'd always had *her* to depend on until then."

Women also, and with great justice, attribute their children's lack of vitality to the indirect as well as the direct results of their own physical weakness, and tell one regretfully: "I can't do for baby as I should, and I can't carry it out into the air." Others have told me, and I believe truthfully, that they have earnestly sought for advice as to the upbringing of their children and have not received it, even when they applied to persons who were morally, and one might almost say legally, bound to give it. It is perhaps as difficult for an ordinary man to think in units as it is for an ordinary woman to think in thousands and averages, and it is for that reason, among others, that the possibility of obtaining the advice of a trained nurse is of such great importance in the detailed prevention of infant mortality.

Still more pitiful is the complaint of the mother who is a wage-earner: "I can't do what I know I ought to; I haven't

the time." It is an undisputed truth that anything that deprives infants of maternal care raises infant mortality, for nothing will replace that care. The death rate among motherless infants, deserted infants, boarded-out infants, and even in workhouses, asylums and orphanages of the most modern type, is very heavy. There are hospitals where no infant patient is taken without also taking the mother, and it is a most necessary precaution. And in spite of all this long accumulation of experience, public opinion seems to be but little disturbed when children are deprived of a mother's care because she is a wage-earner and can only give her attention partially and intermittently, and still less troubled when they are practically deprived of her care because, although she remains at home and has leisure to tend and nurse them, she is too ignorant for her love and tenderness to work the miracles that they otherwise might. Days and nights spent in patiently "cosseting" and soothing a little sufferer will not make up for the ignorance of diet and general management and the neglect of immediate environment, which have caused more than half of the illnesses that are wearing its life away.

One sometimes wearies a little of the ceaseless iteration of mother's duty, mother's responsibility, mother's ignorance, mother's apathy, mother's obstinacy. No one intimately acquainted with the homes of the working class can fail to know how much depends on the father. A widow may, if a vigorous and capable woman, manage to look after her children fairly well even when she has to some extent to earn their living, but, then, her family is stationary in number. No woman can take proper care of an increasing family without help, and in all successful marriages a large part of this help comes from the husband. In domestic life there are fathers of every grade, ranging from those who are so bad that it is scarcely possible for even the best of wives to "keep a home together," up to those who have the deepest concern in the physical and moral well-being of their children and in their intellectual advancement; but the ordinary, average, every-day working class father does a great deal more for his young children than members of the wealthier classes seem able to realize. I remember dressing the hand of an elderly miner after an accident which had occurred in the course of his work, and he told me that he had brought up seventeen children, adding the time-honored recipe: "I done it by always loving the youngest best." It is more practicable for a woman with a husband "always ready to lend a hand" to bring up a dozen children

than it is to bring up three or four if she "has no one but herself to look to." Her need of his help varies from day to day and from year to year, but it is never entirely absent. Many of the men who appear to do little could just as ill be spared as the rest: their office is to keep up their wife's spirits. The most difficult husband with whom I ever came in contact was not a drunkard or a wife-beater or a wastrel, but a perfectly responsible and well-meaning person who in the presence of his sick wife would persist in saying: "She *do* look bad. She looks like my FIRST."

Among the causes of excessive infant mortality, illegitimacy takes a high place. The position of the illegitimate child ignored by the father and wholly dependent on the mother is too well known to need illustration, but in district nursing one has frequent examples of the manner in which the interests of the child of the unmarried mother suffer even when the father is attached to it, and when it has apparently all the advantages of other children in the same station of life and cannot readily be distinguished from them until some crisis arises. Comparatively respectable parents often shrink from seeking help for their child at the risk of bringing to light its illegitimacy, and they almost inevitably drift into very low neighborhoods. Some years ago I was asked by a clergyman to visit a woman who seemed to him to be superior to her immediate surroundings and over whom he hoped that some influence might be acquired. I entered the court where she lived and recognized the first and most unmistakable sign of a disreputable neighborhood, the one which immediately distinguishes it from that inhabited by even the poorest of steady workers, namely, the entire absence of any regularity of hours. There is no fixed time for doing anything: people eat and sleep at any hour of the twenty-four. A group of vicious looking women were gossiping; I asked for Mrs. N. and was surprised when a girl of not more than nineteen came forward, saying, "That is my name." The rest disappeared, and she asked me into her kitchen. Presently a girl about three years old stumbled across the room. I lifted her on my knee and turned towards the light. The mother saw from my expression that I had discovered the only too obvious cause of the child's uncertain movements, and before I could speak she broke into a passion of tears: "She's blind for my sin. It isn't my husband's fault; he wanted to be married, but I wanted to be free." I told her that as far as my knowledge went her child was suffering from a curable form of blindness

and could be admitted to the Eye Hospital if she would get her husband's consent. In a few days all arrangements were made, and on the decent and thankfully accepted pretext that the mother "could not bear the parting," I took the little girl to the hospital myself. The sight of one eye was completely established, and before the patient returned home the parents, as a thank-offering, went through a legal form of marriage.

Even when the importance of a mother's care is apparently given its full weight, the part played in child nurture by the family as a whole is overlooked, and people are too apt to speak and write as if a little money, a State allowance or a compulsory payment from the father would give the illegitimate child as good an expectation of life as the legitimate. They do not grasp the fact that, although something can be done to shield the illegitimate child from the effects of extreme poverty or from gross neglect and deliberate cruelty, it can never be placed in the same position as the child born in wedlock. The illegitimate child has no one to love it but its mother, and no one at all to be proud of it. To take two concrete cases. The first is a baby girl, the fifth child of a man and wife about thirty-four years of age. The man's nominal wages are 15s. a week and his actual earnings slightly under 20s. The wife is not a wage-earner; until her marriage she was in domestic service. The child is a bonny, happy little creature, and she has every reason to be so, for the whole of her waking life has been spent in the arms of people who love her. Most of the evening and a large part of Sunday she is her father's charge; grandparents, uncles, aunts and cousins all contribute to her well-being and compete for her smiles, and although her eldest brother is a strong and handy boy of twelve, he has never yet been allowed to carry her. She wears a pretty sunbonnet, and everyone is told "her cousin in service sent it to her;" she wears boots of a finer and softer make than the older children and they are the gift of some relative, "bought out of his overtime money." It is washing day, and you ask, "Where is baby?" and are told, "She's been long of her gamma all the morning. I must get her back home before her dad comes in!"

In the second case a boy of the same age lives with his unmarried mother and the two elderly relatives to whom for more than ten years she had been in the place of a daughter, and whom she had succeeded in deceiving until almost the last moment. They did not refuse to help her; the old man has even been heard to say that he "don't see what there is so very

wrong about it;" but has he ever been seen standing at the door with that child in his arms? The old woman goes out almost daily; does she ever take the child with her? The girl has numerous relatives, but not one of them has ever shown the smallest interest in his upbringing. The boy has no aid in the struggle for life beyond the bare material means of existence and the lukewarm affection which is all that such a mother is likely to give, even when shielded from the extreme consequences of her act.

Next to illegitimacy, hasty and imprudent marriages without due provision according to the parents' station in life, are one of the greatest causes of the waste of healthy infant life. Public opinion ought to recognize that such marriages are only one step in advance of the grosser forms of self-indulgence and immorality, and often lead to the same state of suffering and degradation. What chance has the infant child of parents who married not only without a decent home and without a proper supply of personal clothing, but actually in debt, compared with the child in exactly the same social position whose parents started their married life with furniture and household effects for three or four rooms, who possessed a useful wardrobe and a small sum of money in the savings bank and had insured themselves against illness and accident?

When supplied with leisure to attend to her children, and knowledge to make that leisure of value, one of the greatest practical difficulties that the poor mother has to contend with still remains,—bad housing. It is true that if women were educated enough to demand and insist on better accommodation, better accommodation would ultimately be found, but their immediate, individual power is exceedingly small.

How are the claims of family life met in numberless old houses still in occupation, and in very many so recently built that they cannot be added to the score of an earlier generation more ignorant of hygiene and with avowedly different views as to the limits of social responsibility? I have entered many homes where patients of all ages had to lie in fireless rooms in the depth of winter, not for lack of fuel, but for lack of a fireplace. Last January I visited a house let to a growing family. It consisted of a small kitchen and washhouse, one bedroom with neither fireplace nor ventilator, and a loft which had only three walls, the fourth side being entirely open to the rickety staircase and every draught from below. A new-born child had been washed in that bedroom and was blue with cold even by its mother's side. The room was beau-

tifully neat and clean, and bitter as it was, it was many degrees warmer than the loft; can one be surprised that all the rest of the family slept there also? It may be argued that the kitchen was available, but there is a strong prejudice against using the kitchen as a sleeping place for anyone but big lads and young men, and even in their case it is done most reluctantly.

The poor woman lying there patiently, in pain and discomfort, said to me, "Ah, the rich doesn't know what the poor has to put up with." This very general belief that the shortcomings of the rich are wholly attributable to ignorance implies a generous faith in humanity.

In the more modern parts of large towns the practical difficulties of rearing children are different, but not less. To take a characteristic example: A most intelligent couple occupy three good rooms in a model building. They are both anxious to do their best for their children and are both convinced that they ought to spend as much time out of doors as possible, and there is a large park within reasonable distance. But—there are seventy steps to go up and down every time they leave their rooms. The family at present consists of a very heavy girl of 3½, who must be led; a boy of 2, who must be carried, and an infant in arms. Except when the father is at leisure, it is practically impossible to take the children out, and then they run great risk by being taken out too late in the evening. The perambulator is kept on the ground floor, and while the mother was taking one child downstairs, what would become of the others?

House agents' catalogues and advertisements are generally considered to provide the most disappointing branch of study in which the human mind can engage. One must acknowledge that there is a serious discrepancy between promise and reality, but much should be forgiven the clerks for their sympathetic and detailed acknowledgment of ordinary human needs, for the open confession that all rooms should be "light and airy," that all houses should be "desirable," and that the large majority should be "suited to a family." Would that all domestic architects, builders and landlords shared these views! Would that they were consistently maintained by all who are in any degree responsible for the housing of the working classes, or in the smallest degree able to raise their standard of expectation. At any given moment men and women may have to accept what they can get, but in the long run they can get what they want.

It must not be supposed that all needless loss of infant life occurs among the very poor, or that all the parental ignorance in the world is their undivided portion. There is still heavy loss of infant life among people who are well above the poverty line, and there is still considerable loss among the middle classes. When one notes how much more frequently the first and second children of such families are lost than any of the younger ones, it is difficult to resist the conclusion that many of them died owing to the culpable ignorance of their parents. I remember a woman, well educated from a literary point of view, telling me that she had lost her first child and the two next were delicate, *although* she had made no attempt to wean any of them until they were eighteen months old! The fourth child, whom she had nursed for the ordinary period, was remarkably vigorous and intelligent. Another educated woman showed me her baby's feeding bottle one summer's day, saying, "Look, he has so little appetite. He has had two feeds from this already and it is not half gone." Then she put the bottle in hot water to raise the temperature and offered it once more to the miserable boy. She lost four children in succession, but each one lived a few weeks longer than its predecessor. When I last heard of her she had four living children. Need her training as a mother have been quite as costly?

Nor must we think that waste of infant life is a new fact in the social organism. When depressed by a sense of the loss and pain implied by the excessive infant mortality which persists among the poorest classes at the present day, some degree of hopefulness can be excited by going into any churchyard in town or country and studying the family monuments erected by well-to-do persons during the first forty years of the last century. Comparatively few fail to record deaths of infants under two years of age, and many bear the names of six or more children who failed to reach the age of five. Ask middle-class people of seventy years of age and upwards to tell you how many of their cousins and their parents' cousins died in infancy or early youth, and you will find that even your poorest neighbors can show a better record during the last quarter of a century. Ask for the details of the upbringing, or attempted upbringing, of these middle-class children, and if you succeed in obtaining them you will probably find yourself exclaiming, "The most reckless and ignorant people in existence would hardly do such things!"

DISTRICT NURSING IN RELATION TO INFANT MORTALITY

By AMY HUGHES, Gen. Sup't. Queen Victoria's Jubilee Institute for Nurses, London

The most interesting feature of modern District Nursing is the share it takes in the prevention of disease and the education of the people in the principles of hygiene and domestic sanitation. When the work first developed, the care of the sick was considered the principal duty of nurses, the question of maternity nursing and midwifery being considered to be more or less a distinct work not requiring special training.

The attention of the public having been drawn to the unnecessary suffering and waste both of maternal and infant life, due to preventable causes, the passing of the Midwives' Act, 1902, raised the conditions under which midwifery cases were attended. This Act, which came fully into force in 1910, recognized that there were many thousands of women who had been depending on midwifery for their livelihood, and, therefore, gave a time of grace from 1902 to 1905, during which any woman who could satisfy the Central Midwives Board that she had practiced as a midwife for at least 12 months before the passing of the Act, and could produce a certificate of good character from a justice of the peace or a minister of religion, could be placed on the Register of Midwives. For some years previously the London Obstetric Society has been granting a certificate of efficiency to those who possessed a prescribed amount of practical and theoretical instruction in midwifery and passed an examination. All midwives holding this certificate were enabled to register at once under the Central Midwives Board rules; but it is instructive to note that at the end of the time of grace some 10,000 midwives were enrolled, of which only about 3,000 had any special preparation for their important work.

There had always been a certain number of Lying-in Hospitals where pupils were received, and also a few District Homes, notably Plaistow, in the East End of London, where pupils were trained in the homes of the people. The number of these Schools and the number of midwives recognized as suitable teachers have largely increased, and, moreover, the curriculum required deals not only with the actual conditions

of childbirth, but also includes the health of the mother before her confinement, as well as the care of mother and infant for some little time after the event. The immediate effect of the Act, with its higher standard of work and the required inspection of all practicing midwives, by medical practitioners or certificated midwives appointed by the County Councils and Municipal Authorities, led to many of the bona fide women giving up practicing; in many instances their places have been filled by District Nurses. These District Nurses, both in connection with the Queen Victoria Jubilee Institute and with other Associations not affiliated to it, are of two classes: the fully qualified hospital nurse, who possesses, in addition, definite instruction in district nursing and holds the certificate of the Central Midwives Board; and the "village nurse" who may have had a certain amount of general nursing experience, possibly even a complete course of three years in a small Cottage Hospital, but who usually has received a special training, consisting of six months' midwifery, ending in the examination for the C. M. B. certificate and six months as a general nurse under constant supervision in the homes of the people, in one of the District Training Schools.

The fully qualified Queen's nurse is usually found in the populous centers and in the smaller towns, also in country districts where there is sufficient work to justify her employment. The village nurse, who is usually selected from the county in which she works, under agreement—after her special training—is found in the smaller villages or sparsely populated country areas, where midwifery and maternity nursing, under the medical men, is her *principal occupation,* varied with the care of chronic cases and the old people of the district.

County Associations have been formed to meet the needs of rural districts. The Committee, a representative one, deals with local Associations within the country area; it selects and arranges for the training of village nurses, which are supplied under certain conditions of service and supervision to the districts affiliated to the Central Association. In this way the employment of suitable women is insured, and also their supervision, by a fully qualified nurse-midwife, known as the County Superintendent. In County Associations affiliated to the Queen Victoria Jubilee Institute this Superintendent must be a Queen's Nurse, and also visits the districts employing single Queen's Nurses. It is not at all unusual for the County Superintendent to be also appointed by the County Council

as the official inspector of all practicing midwives in the county area.

A recent development in connection with the Midwives' Institute has been the formation of Associations of midwives in the various boroughs, counties or districts where they may be working. The object of these Associations is to call the various working midwives together to discuss professional points and also to keep the members up to the latest developments of their profession. Many of these Associations have been organized by Queen's Nurses or work in close connection with them. Some represent a town or city, such as Watford, Bath, Bristol, Nottingham, Swansea, while others represent a county, such as Somersetshire, Worcestershire, etc.

The preventive work of District Nurses has been greatly developed by recent social legislation. The medical inspection of school children has led to the appointment of District Nurses as School Nurses, not only to attend at the Schools themselves, but to be responsible for the after care of the children in their own homes. This is a valuable opportunity of educating the mothers in the principles of health for their children, as feeding, clothing, proper ventilation and cleanliness, all come under the head of the "after care" of these children.

The Notification of Births Act, 1907, has led to the appointment of a number of *District Nurses* as Health Visitors in the United Kingdom. These Health Visitors are notified of a birth, and visit with as little delay as possible. If the conditions are such that further visits are necessary, they are undertaken and all that is possible done for the welfare of mother and child. (See appended report from Barry.) In London, where the notification of *ophthalmia neonatorum* is *compulsory, District Nurses are employed to specially visit cases where there is any fear that the necessary treatment will not be properly carried out.* Their visits, under the ordinary provisions of the Notification of Births Act, also help greatly in the prevention of blindness.

There are at present some 25 Associations employing Queen's Nurses as Health Visitors under this Act.

The districts vary from large centers, like the City of Bath, where some 9 Queen's Nurses are at work, or Stockton, where 7 Queen's Nurses are employed, to country places, where one Queen's Nurse is working. Certain towns employ a Queen's Nurse to combine health visiting under this Act with School nursing. (See appended report from Darwen.)

It needs but little imagination to realize the great amount of good that is being done quietly and imperceptibly in nearly every case thus visited by a fully trained nurse who is able to give valuable information both to the mother and the household generally on the care and management of infants and other children.

Yet another opening for District Nurses has been developed —their employment as Infant Life Protection Visitors—under the Children's Act, 1908, their duty being the inspection of children who are boarded out by the Guardians of the Poor Law Unions. Some 23 Associations, including large towns like Cheltenham and Plymouth, as well as single districts, employ Queen's Nurses. Here they are able, not only to ascertain the conditions under which these children live, but, at their visits, to give valuable help and advice to the foster parents on the proper bringing up of these children of the state.

In addition to this work amongst mothers and children, which is now coming to be regarded as part of the ordinary routine of district nursing, nurses are taking an active part in the establishment of Babies' Clubs and Schools for Mothers. In Canterbury a Queen's Nurse has organized a "Mothers Craft" Club, where the mothers receive instruction in methods of management, the feeding and clothing of their infants. A Consulting Physician attends to examine the children, and inexpensive clothing is on sale. In Dewsbury the Queen's Nurses attend weekly cookery classes organized by the Town Council for young married women, the nurses take charge of the children while the mothers are instructed, and they are able to follow up the lessons amongst the people afterwards. At Northampton, Reading, Gloucester, Queen's Nurses are fully occupied with these Schools for Mothers. (A report from Gloucester is appended.)

In country districts it is not easy to organize large Schools for Mothers, but the nurses frequently attend Mothers' Meetings and other parish opportunities where lectures are given and practical demonstrations on the important points connected with the care and management of infants and young children. The following report from Tullamore, Ireland, is a sample of a country nurse's work:

"A Babies' Club meets once a week. The Committee have taken a four roomed house, and have fitted it up for the use of the Club. At first the mothers were much against coming, and it took several months to bring them around, but now they attend most regularly and bring their babies. The babies are weighed and the mothers are very good

at carrying out any instructions given them by the nurse. They have a very successful sewing class in connection with the Club, and the mothers have made quite a large stock of serviceable garments for the children. The movement is very popular in Tullamore."

Up to the present but little has been done in teaching the care of children in Elementary Schools. One Queen's Nurse, in connection with the Worcester City and County Association, is giving a series of instruction to the girls of the Elementary School under the Worcester Education Committee; this is an opening which doubtless will soon be extended, as the opportunities of reaching the elder girls on these matters are so valuable.

District Nurses also give addresses to the members of *Girls' Clubs,* especially in the industrial centers, as mill girls and others have not much opportunity of learning home management, as they enter the mills and factories directly they leave school. District Nurses are becoming generally recognized by public authorities as one of the means by which people can be reached in a practical manner, and educated *amid their own surroundings in the laws of health and domestic sanitation.*

The preparation of Queen's Nurses comprises lectures and instruction on social subjects, including the various Acts of Legislation; the principles of thrift, and, as far as possible, the various economic conditions under which the majority of the working classes live. They are enabled, therefore, not only to sympathize with the people in their conditions of work, but also from time to time, as occasion offers, to make suggestions with regard to thrift and the value of Friendly and Provident Societies, which cannot fail in time to influence the general opinion of the people amongst whom they labor.

A valuable part of their work lies also in the information they are able to give of the conditions and surroundings of the people to their Committees and others who are interested in raising social conditions. They know where overcrowding exists, they see the worst conditions under which the people live, and their brief statements of facts which they have seen have done much to educate public opinion as to the conditions under which so many of the people are forced to live. Any movement that makes for the education of the parents and leads to the bringing up of healthy children is part of the life of a nation which realizes that its future lies in the strength of its sons and daughters.

EXTRACT FROM ANNUAL REPORT OF BARRY DISTRICT NURSING ASSOCIATION, 1910

Affiliated Queen Victoria's Jubilee Institute

NOTIFICATION OF BIRTHS' ACT

"Since 1908 our Association, Superintendent and five Nurses under agreement with the District Council, has provided Nurses to visit births immediately they are notified, and to instruct the mother as to the feeding and care of the infant. The reduction of infantile mortality is a national problem, and it is satisfactory to note from the Barry Medical Officer of Health's Report that the infant death rate in the Barry District for 1909 was reduced to 2.4 per thousand, as against 4.0 per thousand in 1908. The average infantile death rate for the ten years 1899-1908 was 4.21 per thousand, and in the year 1899 itself the figures were as high as 6.1 per thousand. The present figure, compared with these, is a gospel in itself.

BARRY DISTRICT NURSING ASSOCIATION

Notification of Births—Report of Work for 1910

New Babies visited	874	Old Babies visited	877
(Born since Jan., 1910.)		(Born Jan., 1909 to Jan. 1910.)	
Breast fed (healthy)	765		
Bottle fed	65	Breast fed	739
(Report taken from "White Cards.")		(Report taken from "Brown Cards.")	
Still born	19	Bottle fed	138
Premature Babies (died)	8	Removals	321
Refusals	17	Deaths	61

Of the 61 deaths, 36 were Breast fed, 25 were on Bottle, 20 died from Convulsions, of these 15 were Breast fed and 5 were on Bottle.

Visits paid by the Nurses, 3,557.

EXTRACTS FROM THE "DUTIES OF THE SCHOOL NURSE AND HEALTH VISITOR,"

Darwen, Lancashire

"All notification of births, when not attended by a medical man, in every case are received by the Nurse who visits the home, examines the child, strips it, notes defects, and instructs the mother how to feed, wash, etc., the baby.

"There is a Mothers' Club; women newly confined, once a fortnight attend with their babies at a central place, the babies are weighed, the mothers receive instruction in feeding, dressing, nursing, etc. The

School Nurse acts as General Secretary and Instructor, the Committee being composed of ladies in the town, so that a good deal of the work falls on the Nurse, and the success depends on her."

Town Clerk's Office. Darwen.

DARWEN MOTHERS' CLUBS

Syllabus 1909 and 1910

1909.

Sept. 4. How to prepare for Baby—the Mother's preparation.
Sept. 18. Knitting and Weighing Afternoon.
Oct. 2. How to Care for Baby. Baby's first month
Oct. 16. Breast Feeding.
Oct. 30. Bottle Feeding.
Nov. 13. Babies' Clothing Club.
Nov. 27. How to feed Baby. Bottle feeding.
Dec. 11. Hints on Nursing Sick Babies. (Miss Emuss.)
Dec. 25. Xmas Day. No meeting.

1910.

Jan. 8. Baby's Ailments—Thrush, Colds, Diarrhoea, Constipation (Dr. Haworth).
Jan. 22. Needlework and Weighing Afternoon.
Feb. 5. A Talk on Health.
Feb. 19. Knitting and Weighing Afternoon.
Mar. 5. Why Babies Die. (Dr. Haworth.)
Mar. 19. Cutting Out and Weighing Afternoon.
Apr. 2. How Good Food may be Spoilt and the Mother's Health Injured.
Apr. 16. Needlework and Weighing Afternoon.
Apr. 30. A Lesson on Poultice Making.
May 14. Knitting and Weighing Afternoon.
May 28. Demonstration (Practical) on the best way to Wash and Dress a Baby during its first month.
June 4. Needlework and Weighing Afternoon.
June 18. Drive in the Country.
July 2. Cutting out and Weighing Afternoon.

Summer Vacation

N. B.—"Tea will be supplied at every meeting at the charge of 1d. per cup."

GLOUCESTER

Extract from "The Nursing Times," dated April 29, 1911

"The remarkable decrease to be noted in the deaths of infants in the City of Gloucester during the last few years may to a very considerable

extent be attributed to the influence of the district nurses and midwives, who besides their actual work are doing so much to train the mothers. The following figures show how marked a difference has shown itself. In 1907 the percentage was 127.7 deaths per 1,000 births; in 1908 the figures were 112.4; in 1909 they had dropped to 97.8, and in 1910 to 85.5." Truly a proud record of achievement for any town.

RURAL PROBLEMS IN THE PREVENTION OF INFANT MORTALITY

By ELLA PHILLIPPS CRANDALL, Instructor Department of Nursing and Health, Teachers College, Columbia University, New York

Among the greatest achievements of the present "Health Campaign" has been the demonstration of the absolute interdependence of each and every aspect of this great problem. Everywhere it is granted that pure milk without instruction to mothers must fail to procure life and health to infants; that heredity cannot be separated from environment; that the question of housing is not less imperative than food economics and cookery; that the sciences of eugenics and sanitation are striving to strengthen each other and that all are dependent upon vital statistics and definite educational propaganda. Therefore, the army of workers in these many departments of service to a common cause pause from time to time to take account of results and to map out their lines of advance. Generally speaking, they are reassured by such conferences, for each year marks some splendid gains.

However, it is true that in nearly a decade this very important movement has not reached far beyond the boundaries of our cities and large towns. To be sure, we hear of the work of colleges of agriculture, of the efforts of country churches and Y. M. C. A.'s for social as well as religious uplift, and of organizations like the Grange, which are making for genuine improvements in general rural betterment.

We grant further that States are guarding more carefully their water supplies and forest reserves, the Federal pure food laws extend to city and farm alike, and the war against tuberculosis reaches to remote places. Nevertheless, scant heed has been given to the claims of the countless villages, mining and mill towns and isolated districts throughout the land, although half of our American people live under rural conditions and the majority of our States are agricultural. President Butterfield, of the Massachusetts College of Agriculture (upon whose authority the above statement is made), says, "We are perplexed by the labor wars that are waged about us, for the time unmindful that one-third of the workers of this country make their living immediately from the soil. We are astounded

and perhaps alarmed at the great centralization of capital, possibly not realizing that the capital invested in agriculture in the United States nearly equals the combined capital invested in the manufacturing and railway interests."

Laying aside, for the time being, the larger aspects of this vast question, may it not be profitable to nurses to inquire into their share of responsibility to so great a proportion of their fellow-citizens? As compared with Great Britain, Ireland and Canada, they and the nation have been surprisingly dilatory in meeting this vital need for health protection. In all those countries, and even in Australia, district nursing has been founded on a national basis and, in part, under royal charter, with funds, schools and general management sufficient to permit them to carry their services into the remotest and poorest sections of the country. No part of their work is more important or more deeply appreciated than the practice of midwifery, for which they are especially qualified, in addition to their nursing education. Canada has established a chain of small hospitals which reaches from Vancouver to Labrador, which serve as centers for the nurses. In that the associations are national in their scope, they are enabled to do concerted and effective work. In comparison with these, the few scattered rural organizations in the United States can hardly be considered as more than pioneers in an unbroken field. We gather from Miss Water's book, revised, that out of approximately 600 district nursing societies, representing about 2,000 nurses, there are only 140 associations, representing 166 nurses, which devote themselves to rural work. There are 11 States in which there are no district nursing societies at all. There are 16 others which have not more than one to five each.

These rural organizations, generally speaking, serve two types of communities. One is such as are found in Northern Westchester County, New York; Richmond, Virginia, and Lakeville, Connecticut. In such places groups of small villages unite to support one or more visiting nurses on a co-operative basis. They are sometimes self-supporting and always represent a fair proportion of well-to-do and educated people who are able to pay wholly or in part for the care received, while on "the other side of the mountain," it may be, will be found a tiny, scattered group of neglected and almost abandoned people. The results obtained by such societies have been most gratifying, the more able citizens giving splendid support and co-operation in behalf of the less fortunate ones. However, in so far as we can find, no specific work for the

protection of mothers and infants has been definitely planned and executed. The other type is best exemplified by the community in which Miss Lydia Holman has lived among the mountaineers of North Carolina for the past 8 or 9 years and which has recently become quite widely known. She asserts, and others corroborate her statement, that social and sanitary conditions exist among those people of pure American stock, which surpass those of the worst tenements of New York City. It must be remembered, however, that these facts are by no means peculiar to that region, but exist in Virginia, Tennessee, Kentucky, Pennsylvania—and, indeed, to a greater or less extent in all of the isolated sections of the country. Here the people live in an almost incredible state of ignorance, poverty and degradation. Instead of the ruggedness of such an outdoor life as might be theirs, they live (or, more truly, exist) in groups of ten or twenty persons huddled into cabins of one or two rooms into which the only fresh air that enters finds its way through the cracks in the walls; and hardly more light than air filters in. The conditions of public buildings and also of the land around the houses are equally bad and add other evils as vicious as those within the houses. The food consists chiefly of half-cooked, fat pork and sodden, moldy corn-pone. The inevitable result is that men, women and children alike are victims of disease which makes of them physical wrecks. Not less evil than the maladies themselves, of which tuberculosis, hookworm, roundworm, mountain fever and aggravated forms of indigestion are perhaps most common, are the criminal practices of the so-called physicians and the inconceivable filth and superstitions of the people themselves. Children, even those from what would be our second grade in the public schools, are forced to work in the fields and mills and mines, and when allowed to go to school at all can have not more than two to four months during the rainy season, when they practically live in rain-soaked clothing, making them ready victims of tuberculosis. In some of the southern sections of the country we find the ravages of hookworm disease actually over-reaching those of child labor in the mills. Worse than all other physical ills are those to which the mothers are submitted in childbirth. These are too revolting to be discussed, but some idea may be gathered from the fact that they are often delivered by means so horrible as to have no place here, by the nearest laborer (either man or woman) in the field in which they are working when travail overtakes them. Countless women perish and only an occasional one escapes untold suffering and a most deplorable

invalidism. It is not at all uncommon to find the women plowing three or four days after confinement. It is a common thing to find one man surviving five or six wives—with all the inevitable resultant conditions of family life. The babies are not much better off—their infant days being subjected to all the irregularities of feeding and sleep attendant upon the wretched mother's ignorance and necessities of labor; they pass on to the unquestioned use of tobacco and snuff, cucumbers, turnips and all manner of fried foods at the age of four or five years, or even younger.

In such fields as this, the nurse cannot in any sense be a specialist, as Dr. Richard Cabot designates her. She must in very truth be nurse, dietitian, teacher and measurer of relief; and sometimes (be it said with grave misgivings and deep regret) doctor as well. Indeed, she is a missionary in the very largest and best sense of that word.

As we contemplate the vastness and the intensity of this need, and the all but total indifference to its claims on the part of the nation and the nursing profession, can we fail to compare our attitude with that of our sister nations, who are doing so much?

If so, may not the question be pertinent? Why should not our National Red Cross Society, with all its splendid organization and resources, support, direct and operate such a national service during the intervals of time in which there is no need for its emergency duty? Would the Society not gain in dignity in proportion to this measure of service? Is there any limit to the health education such a body of adequately trained women could offer to the nation?

Is there any other way possible at the present time whereby nurses can enter upon the great vantage ground of service which is rather generally conceded to them in this universal extension of the gospel of health and right living?

VISITING OBSTETRICAL NURSING

An Undeveloped Phase of Work for the Prevention of Infant Mortality

By CAROLYN C. VAN BLARCOM, Executive Secretary, Committee on Prevention of Blindness, New York Association for the Blind, New York City.

Dr. Newsholme, the eminent English sanitarian, in his report on Infant Mortality presented to both Houses of Parliament in 1910, says: "The mother is the natural guardian of her child, and no other influence can compare with hers in its value in safeguarding infant life." In concluding his report, he makes the following recommendations for the prevention of infant mortality:

"1. More detailed investigation of all deaths occurring in infancy, as a guide to administrative action.
"2. Inquiries into the circumstances attending still-births.
"3. The adequate training of midwives.
"4. The efficient administration of the Midwives Act (in England).
"5. The adoption of the early Notification of Births Act.
"6. The making of arrangements for the giving of instructions in infant hygiene to mothers."

The importance of intelligent motherhood seems to open and close most discussions upon the subject of the prevention of unnecessary deaths of infants, and since intelligent motherhood can only result from intelligent teaching, Dr. Newsholme's last recommendation, "the making of arrangements for the giving of instructions in infant hygiene," is practically the crux of the situation.

The value of such teaching has been demonstrated by the work of visiting nurses, carried on under the auspices of nursing associations, health departments, hospital social service bureaus, milk stations and various other agencies. Although but few reports have been made on this subject, they clearly

indicate that death among infants born of mothers who have had care and instruction during pregnancy is markedly less than among infants born of unsupervised and untaught mothers belonging to the same class of society. But the sum total of this teaching given by intelligent persons represents almost a negligible quantity, since about 50 per cent. of the births in this country are known to be attended by midwives who, for the most part, are dirty, ignorant, untrained women. They foster harmful superstitions, know little or nothing of hygiene or of asepsis and antisepsis, in all confidence attend abnormal cases, and, as a result of their obstetrical malpractice, cause unnecessary death and invalidism of mothers, as well as death, mental and physical degeneracy and blindness of infants. Evidently we cannot look to these women in their present state of unenlightenment to give the advocated instruction to mothers and expectant mothers.

The gravity of the midwife problem in this country does not lie in the extent to which she practices, for in Denmark, for example, although midwives attend between 90 and 95 per cent. of all births in that country there is neither the same high death rate among infants, nor the relative amount of unnecessary blindness which exist in this country. The blot on our 'scutcheon is the fact that midwives here are untrained, for the most part, and unsupervised. This does not reflect discredit upon the profession of midwifery as such, however, but, rather, upon the American public for standing by and allowing this to be.

So far as we are able to learn, the United States of America is the only civilized country in the world in which the life and health and future well-being of mothers and infants is not safeguarded so far as is possible through the training and control of midwives. In other civilized countries this has been made a national question.

In America we safeguard only part of the infant population, by requiring that, as a rule, a phyisician shall be intelligent, well educated at the outset, spend from two to four years in study, and pass a State Board examination, before he is legally qualified to assume the responsibility of attending upon the birth of a child; while a nurse, also intelligent and educated, spends two or three years in hospital training before she is considered competent simply to execute the orders of the physician, and give nursing care to mother and child during that critical period of two or three weeks immediately after birth.

In this country, except in a few localities, both of these functions—those of doctor and nurse—may be discharged by any untrained, unlettered woman who chooses to style herself a midwife.

But possibly even a greater inconsistency to be noted in the American situation is the fact that, while the work of the untrained midwife is militating against infant life and health, there exists a hitherto unused force, which, if operated, would exert an even more powerful influence in favor of infant welfare. I refer to the trained obstetrical nurse, so admirably equipped to act as midwife, nurse and instructor.

If we are to prevent infant mortality, blindness and other calamities which we know may in many instances be prevented through *careful and intelligent care,* we must have the work that is done by midwives—call it what you will, midwifery or obstetrical nursing—done by trained women.

Since a person engaged in this work should be permitted to attend only normal cases and should be obliged to call in a physician upon the appearance of any symptoms of abnormality, the greatest value of her services will be in giving humane and intelligent nursing care to the mother and her infant during the twelve or fourteen days following delivery, and in advising the mother as to her own hygiene before and after labor, and as to the care and feeding of her infant. Not only does the immediate safety of mother and child depend upon the character of the attention at this trying time, but the future health and well-being of both individuals hang delicately in the balance, easily to be impaired or destroyed through ignorant or careless work. It requires no effort of the imagination to conceive of the wonderful opportunity thus offered to nurses to tip the scale in favor of the mental and phyisical health of a large number of mothers and infant citizens.

As has been pointed out, although in many instances visiting nurses do not perform the delivery, they are already giving care and instruction during pregnancy and the puerperium. In one of our large cities, during one summer, work of this character was done by nurses in the employ of the Department of Health, visiting all midwifery cases reported to the department, and giving advice and instruction to the mother and, in some instances, to the midwife. The death rate among babies in this city was appreciably reduced during the season referred to. Probably other factors besides the visiting nurses should be taken into consideration in accounting for this decline in the death rate, but the evidence is all in

favor of good care and teaching which, it must be remembered, followed upon the heels of work that was acknowledged in the beginning to need supervision and correction.

The results of this and other experiments have been most suggestive, but, singularly enough, the lead which they offered has not been followed, for little or nothing has been done in this country to induce trained women actually to practice midwifery.

That midwifery is logically work for trained nurses has been recognized both by the lay and by the medical public in England, Australia and New Zealand. In these countries we find the midwife very commonly a trained nurse, officially supervised and frequently working in conjunction with public health and philanthropic agencies for the purpose of preventing infant mortality and blindness. And her work is, above all, that of an instructing visiting nurse. In addition to acting as midwife, she gives her patients nursing care and secures for them adequate medical attention on the appearance of symptoms of any complications.

In England, as most of this audience will remember, conditions existed ten years ago which were much the same as those confronting us today in America, *i. e.,* mothers and babies in the hands of women who, for the most part, were unfit to discharge such grave responsibility. The real reform in England began in 1872 when the Obstetrical Society of London, for purely altruistic reasons, appointed a board of midwife examiners from among its members, instructed to give examinations to midwives and certificates of fitness to practice. Although neither examinations nor certificates were of legal value, it is readily understood that the value of this step lay in giving prestige to capable women, and thus tending to raise the standard of the profession. It is interesting to note that the London Obstetrical Society was incited to this action as the result of an investigation into the causes of infant mortality in 1869.

At a later date in the transactions of the Society occurs the statement that "This council regards the absence of public provision for the education and supervision of midwives as productive of a large amount of grave suffering and fatal disease among the poorer classes, and urges upon the Government the importance of passing into law some measure for the education and regulation of midwives." (November 29, 1889.)

In 1893 the "Select Committee of the House of Commons on Midwifery Registration" reported, "Your committee are of opinion that a large number of maternal, and particularly in-

fant, deaths, as well as a serious amount of suffering and permanent injury to women and children, is caused from inefficiency and want of skill of many of the women practicing as midwives without proper training and qualification. They find that among the poor and working classes, both in the country and in towns, the services of properly trained midwives have been eminently successful and of great advantage to the community.

And so, for thirty years, the pleading for better midwifery in England continued until 1902, when the splendid Midwives Act became a law. Briefly, this required that any woman desiring to practice midwifery in England should be a graduate of a training school approved by the Central Midwives Board (appointed by this Act), and should pass the written and oral examinations given by the Board and conform to its rules and regulations. Since 1902 the status of the profession has been steadily rising.

It was necessary, of course, to register all midwives in practice at the time of the passage of the Act, but many of these have since been dropped from the roll because of inefficiency, while others have improved under supervision. (But the real causes of the improvement are the better class of women who have entered the profession and the better training given to them in the steadily improving schools.) At first, many graduate nurses with general training added midwifery to their equipment because of the prestige which this broader experience gave them. By degrees it grew more and more popular, one might say, until now it is the rule rather than the exception for nurses to add midwifery to their general training, while a Central Board certificate is practically required as one qualification for filling any nursing post.

(But it is the nurse's influence and the part she takes in real midwifery as it affects mothers and babies among the poor in England that impresses one so profoundly.)

Comparatively few of these well-equipped women are engaged in independent midwifery practice for themselves. But they are working in large numbers in connection with visiting nursing organizations, charitable agencies and out-patient hospital departments and as midwife inspectors under the Government. For instance, in practically every group of Queen's Nurses, whether in city, town or rural community, there is at least one, a trained nurse-midwife, who does all of the maternity work coming under the direction of that nursing home. Patients are encouraged to book with such a midwife early in pregnancy for obvious reasons. It is possible then not only

to instruct her as to her own care, but to give advice as to the baby's clothes, and to improvise from a box or basket a separate bed for the baby to sleep in. If the labor is a normal one in every respect and all goes well, the midwife conducts the case alone, but if it be other than a vertex presentation, or if labor be prolonged or in any way abnormal, she is obliged by the rules of the Central Midwives Board to send for a physician. During the puerperium she visits as a nurse would—twice daily at first and subsequently once daily—in all, for ten days. At each visit she takes and records the mother's temperature, attends to the mother's toilet and bed, and bathes the baby. Vigilence is kept over the baby's cord and eyes, and complications in the mother are carefully watched for. If either mother or baby deviates from the normal, the midwife is obliged by the Central Midwives Board to send for a physician and to notify the local supervising authority that she has done so.

All midwives, no matter how well trained, whether working independently or in the employ of any organization, are inspected according to the rules of the Central Midwives Board, by inspectors employed by the local supervising authorities. The local supervising authority is analogous to our local Board of Health.

It was interesting to find that the midwife inspectors were either midwives or women physicians, but far oftener midwives who had previously had general nursing training, the feeling being that the latter, by virtue of their practical training, could make their inspections of great practical value.

One of the inspectors in London, Dr. Pilliet, was first trained as a nurse, then as a midwife, third as a sanitary inspector, after which she took the degree of doctor of medicine. Dr. Pilliet is probably one of the most valuable midwife inspectors in England. In talking of her work, she volunteered the information that, if her work as a midwife inspector was valuable, it was her nurse and midwife training which had made it so. She felt that a successful midwife inspector must know from personal experience the difficulties which a midwife encounters in her work and must be able to give her practical suggestions as to how to overcome them. In other words. the inspector and midwife should have as much common ground to work upon as possible.

It was little short of an inspiration to go about with the English midwife inspectors on their rounds and observe what they accomplished for mothers and babies by means of their inspections. I think my observations were fair, as I saw the

work in cities and towns of various sizes and in rural districts, and done by women of various degrees of efficiency. In one particular, however, there was no variation—they all worked with the midwives in such a way as to make one feel that they were instructors and advisors rather than inspectors. The same spirit seemed to fill them all—namely, that as inspectors they were responsible for the actual work of the midwives who came under their jurisdiction. Inspection did not mean the mere visiting of the midwife's home and the perfunctory checking off of the contents of her bag. It meant talking with the midwife about her patients and her work, going over with her the patients' records, which are required to be kept by the Central Midwives Board, and constantly establishing a relation between the so-called inspections and the welfare of the patients themselves.

This work also includes supervision of the midwife while at work. It is required that when a midwife leaves her home for the purpose of attending patients, she shall leave behind her the addresses of her patients in the order of her proposed visits. Thus the inspector is enabled to follow her charge and observe her manner of conducting a delivery and her nursing methods. This offers to the inspector an excellent opportunity for giving practical instruction by working with the midwife over her patient, and also by making notes upon defective work. More than this, the inspector assembles her patients and gives them simple, practical talks upon their work.

The influence of this character of supervision is to be traced in the observations on each midwife's work which the inspector is required to make from time to time. Many of the old bona fide midwives show gratifying improvement under this kind of inspection, while those who continue to be unsatisfactory are dropped from the roll, thus being legally disqualified to practice.

Concrete evidence of the value of this branch of nursing and instructive work was disclosed by a study of the records kept in the office of the Medical Officer of Health of Kent County. We found that during the years 1909 and 1910, respectively, the midwives in this county reported about the same number of births, but during the year 1910 the midwives summoned medical aid for their patients in twice as many cases as during 1909. Searching still further, we found that the number of times in which the midwives sent for medical aid in the face of perfectly obvious difficulties remained about the same. But those complications which required closer observation—or, in other words, spoke for more careful trained work—in those

cases medical aid was secured in double the number of instances among the same number of patients. Can there be any question but that work of this character would make for healthier mothers and babies?

While it is not possible to reduce the value of trained midwifery work in England to any concrete terms, it is significant, indeed, to find that during the last nine years, since the enactment of the Midwives Act, the percentage of deaths among infants has dropped from 151 per 1,000 during 1901, to 106 per 1,000 in 1910, and the deaths from puerperal sepsis and accidents of childbirths have dropped from 4.65 per 1,000 in 1901 to 3.69 per 1,000 in 1909. Midwives in England attend about 50 per cent. of all births. It cannot be claimed that this decrease of deaths among mothers and infants is due to the workings of the Midwives Act, but it is believed by English workers that the better obstetrical work now being done must be reckoned as one factor in this decline. The opinion expressed by Dr. Newsholme in advocating even better administration of the excellent Midwives Act, better training for midwives and more teaching of mothers, seems to be shared by the majority of the English workers. They believe that raising the status of midwifery not only militates against infant mortality, but, what is probably even more important, is a strong factor in the reduction of infant morbidity. We are told that the Nation's health is the Nation's wealth. If this be true, it is well babies and not simply live babies that we want.

In advocating that the status of the midwife profession in America be raised, one cannot but feel that both midwives and members of the lay public should be impressed with the wide difference between a midwife and an obstetrician. The midwife should not vie with the doctor, but should be rather a competent visiting nurse who will attempt only normal deliveries, and be so well trained that she will secure medical attention for her patients in all cases of abnormality.

The idea of associating midwifery and trained nursing is not recent, for Miss Nightingale advocated the training of superior women as midwives as early as 1881, feeling that it was a service women should offer to women.

"Midwifery was another branch of the nursing art which Florence Nightingale sought to reform. She published, in 1871, 'Introductory Notes on Lying-In Hospital'; and, in 1881, writing on this subject to the late Miss Louisa M. Hubbard, who was then projecting the formation of the Matrons' Aid Society, afterwards the Midwives' Institute, she said, referring to these 'Introductory Notes':—

"'The main objects of the 'Notes' was (after dealing with the sanitary question) to point out the utter absence of any means of training in any existing institutions in Great Britain. Since the 'Notes' were written next to nothing has been done to remedy this defect. * * * The prospectus is most excellent. * * * I wish you success from the bottom of my heart if, as I cannot doubt, your wisdom and energy work out a scheme by which to supply the deadly want of training among women practicing midwifery in England. ('It is a farce and a mockery to call them midwives or even midwifery nurses, and no certificate now given makes them so.') France, Germany, and even Russia, would consider it woman slaughter to 'practice' as we do.'"

Strangely enough, although there is no question as to the greater value of trained work over untrained work in any profession, there are objections offered to raising the status of midwifery in this country. It has been claimed that recognition and training of midwives in Continental countries have not made for better health among mothers and babies, and the recommendation is that they should be abolished from America rather than trained and perpetuated. It has not been pointed out at the same time, however, that bad as midwives are in America, there is actually more blindness among babies and more death among mothers traceable to physicians than to midwives; nor is it advocated at the same time that, because of this, the medical profession in America be abolished. On the contrary, greater and greater effort is made to increase the efficiency of American physicians by giving better instruction in the medical schools. Why does not this same reasoning apply to midwives?

As for the fear that trained midwives will invade the province of the physician, this has not proved to be the result of giving better training to midwives in England. And to the credit of the American physicians be it said that they do not advance this objection as a body. Physicians and laymen are recognizing that this is not a question of providing a living for doctors. It is entirely a question of securing better care for mothers and babies for the sake of improving the health of the nation.

And so, it is while we think of the invalid mother, the delicate maimed or blinded baby that we make a plea to nurses in America to develop midwifery as a phase of their Visiting Nursing work.

DISCUSSION

Dr. Rachelle S. Yarros, Chicago: The midwife cannot be abolished at the present time. A large proportion of the women of foreign birth demand midwives. The thing to do is to improve the quality of the midwives, possibly by having obstetric nurses or other trained nurses with normal cases. A great need is for the attendance of either physicians or trained nurses at moderate fees for the great middle class.

CO-OPERATION IN NURSING AND SOCIAL WORK

By ALICE L. HIGGINS, Secretary Associated Charities, Boston

I come before this audience so representative of two long-recognized and honored professions from a profession as yet scarcely recognized; even the name is often not understood. Recently a Boston social worker fell into conversation with a fellow-traveler in the western part of our State and was asked his occupation. Almost stammeringly he said, "I—I'm a philanthropist." "Oh," was the comment, "that must be very jolly; you can then make voices come from all parts of the room." This, however, as a description is not so far from the true one as it might seem. Make voices, no; but to hear the voices of the community, the life story of each nationality, the history of the toilers, the cries of the weak—hear them all, try to understand them and interpret them to all the community in order that needs may be met, wrongs prevented, and opportunities offered, that the city may know itself and so come into harmony—this is the task of the social worker.

How far are nurses and social workers engaged in a striving toward a common task? As I understand it, nurses are working to make healthy citizens of good character, and social workers are working to make citizens of good character with healthy bodies. We are each forced to adopt both, because we have seen that health and character are closely interrelated. Both of us are working with changed methods. Time was when you thought you could apply health like a plaster from the outside, and we thought we could present people with well-being in a grocery order. We were not alone in the fallacy of outside application; the educators tried to stick on knowledge with a diploma or a Ph. D., and the benevolent tyrant handed government down from above. Now it is a commonplace that doctors must call health forth from nature, must use exercise, sleep, food, freedom from worry, rest or activity to produce results, while the educator aims to make his patient think, the statesman to make the voters act, and

those of my clan are putting opportunity before our patients, fitting it to his powers as carefully as you do a brace, and by every encouragement and persuasion help him to *achieve* prosperity. We have, however, failed to see that this change in method and startling unity of procedure should have brought us together as co-workers long ago. We have all of us given up trying to put on to our patient like an outside thing our own specific health, education, government, or prosperity; instead, we are all engaged in drawing these desirable things out of him, showing him how to win them for himself; showing the way advice has become the new prescription, and, incidentally, we are all advising him at the same time. Hence, what he himself really is has become a vital matter to us all if we would help him, because now we must understand him and we must understand each other also—each other's advice.

Curiously, perhaps naturally, our special experience keeps us apart and makes it easy for us to misunderstand each other. A physician explained it to me thus: Every doctor and nurse is taught to see each patient or individual isolated and of equal value, a bit of life that is to be nurtured at all costs. The unit to the medical worker is the individual. Social workers see individuals in their social relations of different value, and the unit to the social worker is the community. Yet I believe there is no conflict here; when the interests of the individual and the community seem to conflict we need to look higher, deeper, farther, to find the harmony that must exist. And if to you we have seemed to think of the individual too little, and if to us you have seemed to forget the community too much, we surely need that co-operation which Dr. Richard Cabot says should mean the reformation of us all, and, he adds, real co-operation is a readiness to learn from one from whom you know you can learn nothing.

I fancy the emphasis in all our minds is not so much to reduce the death rate in years of infancy, as to improve the quality of human life. I should like first to give enthusiastic and deep appreciation of the assistance in this effort that the social workers of Boston receive from the medical workers. The medical history gives us valuable help in our social diagnosis, it modifies our treatment at every turn, and it directs our after care. When you realize that in the last three months 29 per cent of all the families referred to the Associated Charities were referred directly by the medical agencies, and, of course, many other families had medical problems, you can imagine our debt to the medical workers,—a debt we gladly acknowledge.

I wish to give you the result of several interviews I have had recently with medical workers as to the assistance the social history is to them in medical diagnosis, treatment, and after-care.

Diagnosis. A young child was brought to the eye department of a busy dispensary; treatment in that department being of no avail, he was sent to the throat department; after failure there, he was transferred to the lung department. The symptoms for this department were slight and the child was sent back to the eye department. The physician then in charge sent for the social history of the family and at once determined the diagnosis and the child was sent to the skin department.

One physician inquired at our Exchange as an experiment and became convinced of the value of working with social agencies after he gave the name of a sick baby who did not respond to any treatment, although his apparently healthy mother did all she could to co-operate with the doctor, and our record showed the mother went to the sanatorium for tuberculosis in 1906. With this knowledge he changed the treatment, took the baby from the breast and saved its life.

Treatment. One evening I had the pleasure of introducing a young doctor who was a specialist in baby diseases to a group of workers in different branches of social work. He asked each, "What can you do for me?" for we were to him an unknown quantity. When it came the turn of the Secretary of the Society for Prevention of Cruelty to Children to answer the challenge, that gentleman said, "I can keep a baby for you in the Children's Hospital when you think it is necessary, although the mother wants to take it home. I can take a baby there for an operation when you think it necessary to save life and the parents refuse consent." Then we told this doctor of the clause we wrote into our neglect law, that parents must allow a child proper physical care because we brought the Massachusetts Legislature to see that health is the greatest asset of the commonwealth.

After this amended law was enacted the first case in which it was used was the case of two little Syrian children. One child, through neglect, had lost the sight of one eye and that of the other eye was seriously threatened; the other child of the family was in danger of becoming a cripple from an aggravated case of rickets. The physician ordered that one child must immediately go to the Eye and Ear Infirmary if sight was to be saved, and the other to the State Institution for Crippled Children. Both children were under the treatment

in the institutions that finally saved eyesight for one and ability to walk for the other. And yet another gain,—a Syrian Charitable Society of its own initiative had the law printed in Arabic and circulated in the whole Syrian neighborhood.

The doctors say we are bringing them information that modifies treatment every day, and together we carry it out.

After-care. One of the doctors who is a baby specialist tells us that 60 per cent of the babies who have heart trouble die before puberty, and he is enlisting us in a scheme of after-care for these children that will carry us to the school to win a consideration for their needs that we hope will tide them over into healthy youth.

And now some of the doctors and social workers who understand each other are hunting for a disease that hasn't a social significance, so that on one disease they may wave us aside. One physician said, "We have it; we do not need the social worker in surgical cases," but another groaned good-naturedly, "No, you persuade them to have the operation and you build them up after it." We started this closer co-operation with medical workers in cases of tuberculosis; now we work together in cases of debility, surgery, venereal diseases, with the anaemic girl, the alcoholic, the nervous case; even with the normal contingency of childbirth we are working together. In some of our districts every pregnant woman known to us is referred to the special nurse for pre-natal care and we consult from the beginning on general sanitation in the home and, when necessary, plan how the habits of the parents may be changed. The barriers to this co-operation are a failure on the part of the social workers to understand the medical point of view, or vice versa. I heard a young physician, in a lecture to social workers this fall, say, "Bother us as little as possible with social history; just carry out our treatment." I heard another doctor who was socialized say in a later talk, "Make us listen to the social history; we can pick out what affects us, and when you try to carry out our treatment, tell us why it doesn't work, if it doesn't." I hope the time will soon come when you will be as eager to give us the medical point of view as we are to give you the social.

We have been told never to send a patient to a doctor with a note saying. "This baby has such and such a disease." The physician rightly resents our making diagnosis in the medical field. We are guilty of worse than discourtesy; we are convicted of idiocy. We should write symptoms, not conclusions. Also, if I may presume to advise you, when you as medical specialists go to the social specialists, remember you go to a sister-

specialist, and should you not, too, give symptoms rather than conclusions? We have our reasons and our reactions, as you have. You are naturally often impatient with our emphasis on character, yet the Superintendent of a big Dispensary said once, in answer to my question, after I had gone through room after room, "What brings all these people here?" "Sin." And if we look at it in the broad way, including sin of parent and sin of community, it is fairly accurate.

The most common request from the infant specialist is naturally, "Milk, please; the parents cannot pay." Let me cite two instances. One baby had an able-bodied father and brother of earning age who were loafing, and the father drinking. The request was sent up to me, as I held a milk fund. At that moment the father was in jail, I said, "Get work for the brother, and if he will work three days I will send the milk for a month." The young man took the work, kept it all that summer, gave his earnings to his mother and, to the best of my knowledge, is working now. You are interested to save the baby. We are interested to save the baby and the family, too.

The other instance was in my own district experience. A hard-working mother of five children came to me for a milk order for her baby. The father was of the non-supporting type. I said if he would do some work, perfectly appropriate work, I would send the milk. He refused, and she said if he could not work for her sick baby she would no longer support him, and turned him out. Then her baby had the milk. Today we have a better law and should try to prosecute him; if he violated his probation pledge we could send him to the House of Correction at hard labor, and his wife could be paid 50 cents a day.

I am sorry that the custom of some medical agencies is to go to a social agency only when the parents are unable to pay for milk. A situation full of social significance may exist, but it is not brought to light unless there is failure to pay for the baby's milk. I hope soon we shall have more medical lectures in our schools of philanthropy and more social lectures in our nursing and medical schools, so that in the early stages we may detect more medical situations and you more social ones. It is not conceivable that we ought to treat each other's problems, for we should each be without sufficient proper training, as are the midwives, but we might then recognize situations that should be referred for treatment to the proper agency. But I look forward to

co-operation on a larger side, more important even than diagnosis, treatment and after-care; the prevention of some of the ills we work so hard to remedy.

Inebriety. Are we doing all that we should for informing the public as to the results of taking alcohol? The connection between intemperance and the life of the nursing baby in the hot, dangerous days of summer is close. Dr. von Bunge, of Basel, considered 1,002 family histories selected indiscriminately from among the patients of over 100 physicians whose co-operation was secured in collecting absolutely reliable information. Cases with evidence of hereditary taint have been rejected, as also those where the parents suffer from chronic disease. These 1,002 mothers were all nursed when they were babies by their mothers, but when they are classified into four groups, according to the habits of their fathers, this result is seen. Out of every 100 daughters whose mothers nursed them and whose fathers were abstainers, 91 per cent were able to nurse; of every 100 daughters whose fathers were moderate drinkers, 88 per cent were able to nurse; of every 100 daughters whose fathers were heavy drinkers, only 31.4 per cent were able to nurse their children, and of the 100 whose fathers were drunkards, only 10 per cent were able to nurse their babies. When 90 per cent of daughters who had been nursed by their mothers had lost their power to nurse their children, do we not owe the public information?

The anaemic girl who is worn out at eighteen because she worked too hard and played too little, is she not to become a mother? What strength will she give her baby? Are you not then interested in the enacting and enforcement of Child Labor Laws, of the maintenance of Recreational Centers? The dangerous trades for the young girl and the mother—when are we to act together on that way of improving the quality of human life by giving the baby a more healthy mother? Remember the homes into which these babies are born. Until every State has an enforced civilized building law, we would better drop any discussion as to whether we need to co-operate and work together to get it. As long as girls and boys, with feeble minds, lacking power to protect themselves, go about our cities and bring to us the babies that should never have been born, we would better not wonder if we can help each other, but press on together, with our united experience, to win for the feeble-minded the protection under custodial care which they require.

When we each see our work in its large relation, there is no question as to whether we need each other. The race has

always reached out for a fairer world, sometimes upward to a Heaven, sometimes backward to a Golden Age, but our task is together to reach down into the hearts of men, upward into God's faith in men, outward into the brotherhood of men, to get all to help us in the large co-operative spirit, to help babies to be born well and to grow strong in body and soul.

DISCUSSION

Dr. Henry B. Favill of Chicago: The medical resources known to the world are not sufficiently available to the poor. The difficulty is that the machinery of society has broken down at the point of contact of acquired scientific knowledge and its application to the mass of the people. This is nobody's fault in particular. Up to recently the agency of administration of medical relief, which included advice, etc., has been the local physician, who in that respect has not been a success. Many reasons have contributed to this unfortunate fact—the ignorance of physicians, the multitude of struggling, low-grade physicians, and lack of intelligence and education among the people.

PLAISANCE HOME FOR AID TO MOTHERS AND BABES

By DR. ANCELET, Plaisance, France

Mademoiselle Chaptal has requested me to tell you, on the present occasion, about an institution which was one of the first which she founded and with which she has been pleased to associate me from the start.

This institution, "Plaisance Home for Aid to Mothers and Babes," modest in its inception, now perfectly developed, presents to us an evolutionary advance which may serve as an example to its younger sister organizations, so numerous at this time. It has hence appeared to me interesting to relate to you briefly the different phases through which it has passed in the more than ten years already elapsed since its birth and to inform you particularly of the results now achieved.

When in January, 1901, at the instance of Mademoiselle Chaptal, I began prescribing for nurslings very modestly and in the recess of a back shop, it then appeared to me as a very simple affair and—the expression applies—of almost childish realization.

Nevertheless, when I conferred about it with my principal, Professor Budin, I must say that he somewhat tempered my self-confidence, but disclosed to me, with the authority of his vast experience, that a nursling could not be normally raised nor medically brought up without complying with a certain number of necessary conditions, that a consultation on nurslings did not fill the requirements, and that it would take some little time to make the matter a success.

I might well have given way to discouragement had I not already felt that it was sufficient for me to trust blindly to Mademoiselle Chaptal, who knew no objections, being possessed of that faith in her star and of that force of decision and of organization which inevitably carry with themselves every good will and every success.

I was to find out, however, that the predictions of Professor Budin came true. My prescriptions, however simple, were not faithfully followed, owing to the mother working out or to the tyrannical exactions of an intemperate husband failing to supply with food his wife who was nursing and objecting to the child's cries. The maceration of garlic cloves in wound-wort or other such panaceas advised by the neighbor triumphed

over a rational regimen or diet which I had prescribed and that because the execution of the prescription was not looked after. Everywhere unlooked-for difficulties sprang up and clearly testified to the fact that a consultation on nurslings cannot of itself efficiently get along, but that an institution devoted to mothers and nurslings must not only watch over the child outside of consultations, but must also be a readjustment of the parents' mentality, a war against numerous prejudices, a transformation of the social environment, and, in short, a complete remodeling of the family.

That was the only way to make the undertaking successful and lasting and, thanks to the magic wand possessed by Mademoiselle Chaptal, and which at once realized what others dream of, the several ideas suggested concerning the enterprise soon materialized, and it is with a certain pride that I am in a position today to converse with you about the institution in question.

I had occasion, in August, 1904, at the instance of Professor Budin and thanks to the very kind hospitality of Mr. Strauss, to publish in the "Revue Philanthropique" a lecture on Homes for Aid to Women and Babes, wherein I viewed what should be the type or model of such organizations, what we had already experienced in that line, and which was little indeed to what it achieves today. Let it suffice, instead of going over the ground already covered, to review what has been done to this day by the Plaisance Home for Aid to Mothers and Babes.

A foremost and essential condition, the very gist of all bona fide charitable works and to which much attention was given in our organization, is the making of thorough inquiries concerning the beneficiaries. No real charity is possible without such condition, as aside from the deserving poor class often less exacting than others, there is, in a city like Paris, a mob of paupers preying on public charity, selling the alms given them and changing their location and removing to another ward when their scheme has been ferreted out. Mademoiselle Chaptal has in consequence added to the mechanism of our institution a service of inquiry which records complete data touching the beneficiaries.

To promote that object, we have met, in ladies of society and pupils of this school, with the best of spirits and a downright devotedness, and our investigators have now acquired that experience so necessary and by no means intuitive which allows them to discern what is real and sincere from what is fraud and lie.

Needless to say that, inspired by the broad-mindedness of the foundress of the institution, we absolutely ignore all religious or political prejudices and are only guided in the assistance we give by the degree of physical or moral wretchedness as established by our inquiries.

Thanks to a consultation specially intended for women and given once a week by my colleague, Dr. Trannoy, future mothers already receive advices on their health, on hygiene, on the kind of work they may do without too much fatigue before and after childbirth, on the advisability for them to nurse; and thus it is that, in 1910, 303 consultations were given. Many are the women who, thus strengthened, are better prepared for confinement and for nursing.

To prevent the family routine from being disorganized by the necessity for too many women to go to a hospital for their delivery and trusting their children to public aid, as the husbands cannot attend to them, our institution has arranged that such women be confined at home and has established a service of sick-nurses, who attend the confined woman a few hours every day, give her the necessary hygienic care, look after the children and do the ordinary work in the house. Some of those sick nurses have been able to attend for almost three months a woman afflicted with puerperal phlebitis. The institution has thus been able in three years to save 68 women the necessity of being confined at the hospital.

So the child is born under most favorable conditions. As soon as possible, the child is brought to us by its mother, and upon its arrival at the Dispensary, the child has its file as well as that of its family. First placed on the scale, the babe is given its weigh bill, and it is indeed by the weight regularly registered every week by pupils of the Home-School entrusted with such function, that we are henceforth to look after the animal growth of the child and the little ones verify the proverb: "who weighs himself knows himself."

After that formality has been complied with, the child is handed to me and I prescribe his diet.

In order that you may better and more readily understand how our institution deals with the child, we will examine the latter in three different cases:

The child fed with mother's milk.

The child fed with animal milk.

The abnormal or sick child.

It would be our wish that all babes be fed with mother's milk, but, unfortunately, there are many impediments to our

desire: absence of milk with the mother, the condition of her health, the fact that she works out, etc. Mademoiselle Chaptal's efforts and my own have always tended to enable as many women as possible to nurse their own children, and thanks to a rational distribution of food to mothers (5,115 orders for meat and 1,926 for farinaceous food were delivered in 1910), thanks to an improvement in the hygienic conditions of tenements and to the creation of the garden—of which I will speak in a few minutes—thanks to our ability to procure work at the domicile, our efforts met with success and each year the number of mothers nursing increases. They numbered 109 in 1908, 143 in 1909 and 168 in 1910. And, as a natural consequence, the number of mothers nursing increases as well as the number of children enrolled, my consultations for diseases diminish and my prescriptions, which totaled 1,063 in 1908, have fallen to 674 in 1910. Feeding the babe with mother's milk diminishes infantile mortality and the constant success which has met our endeavors speaks highly for our Nursery.

We indeed had to contend to achieve that result. Many mothers in the laboring class are willing to nurse provided they are facilitated in that duty, but, on the other hand, their ignorance of hygienic lactation is absolute, taking food most improper to produce good milk, indulging in drinks containing too much alcohol and, what is hardest to remedy, inconsiderately nursing the child, thereby diminishing their own milk. It is with unrelenting energy that we have striven to persuade mothers that they must wake their child when the time for nursing has come, that they must apportion their milk if it be too abundant or that a child that cries is not necessarily starving, but that too often such cries are due to indigestion caused by overfeeding.

Too many children under our care are only given artificial milk as, in our midst, many mothers are too tired after their daily labor or too weak to stand the debilitating effect of nursing. And that is the reason why, although our wish would be that all mothers should nurse, I often am the first to suggest a certain ratio of animal milk. There are, moreover, children who must be weaned, as their mothers' milk (whatever the hygienic conditions be) is utterly unfit for them.

When necessary, I prescribe the proper dose of animal milk for each child, and in order to safeguard as much as possible from the evils of such animal milk employed by careless women, we distribute printed directions indicating the special

care to be taken to avoid such evils due to artificial nursing and particularly gastro-intestinal infections.

To the figure of 168 nursing mothers recorded by us in 1910, I am pleased to oppose 75 cases of nursing by animal milk only, and in 32 of such cases animal milk only entered in a small proportion and 45 of totally artificial nursing.

Despite that satisfactory statement, we have distributed, as well to children as to certain weak mothers, 13,388 orders for milk in 1909 and 15,382 in 1910.

We distribute two kinds of milk: fresh milk and sterilized milk, but chiefly fresh milk, and its use, although deprecated by some, has caused no mishaps, thanks to a careful supervision.

Besides the natural-born children or those whose health requires no special care except the ordinary precaution as to hygiene and food, we are too often entrusted with babes I may call abnormal, rendered so either through excessive debility or by diseases requiring special treatment.

Those abnormal or sick children have, besides their weigh bill, a file detailing the several observations peculiar to them and where their progress is carefully noted outside of the variations in their weight. Such observations are recorded daily under my supervision by a pupil of the Home-School who attends the consultation. Those cases have, however, been provided for, and following is what Mademoiselle Chaptal has empowered us to do.

As a consequence of poverty, fatigue or sickness in the mothers, children are often born in a state of debility such that they seem destined to a sure death, some of them actually weighing but 4 pounds. We have succeeded this year in helping them out with an incubator which Mademoiselle Chaptal was kind enough to buy and in which we can "mature" one and even two such diminutive babes, as the twins now occupying it.

Among the abnormal must also be reckoned twins, who cause an increase of occupations and expenses in the household. We give close attention to those twins and their parallel evolution is made a matter of special solicitude.

Then come the sick babes to which we give much interest and which require comparatively few consultations.

At my semi-weekly consultations are presented to me sick children which, if the disease is contagious, have first been quarantined in a room adjoining the parlor. If the disease is of a benign nature, I am content with prescribing medicine

which is furnished free to many mothers by Mademoiselle Chaptal (674 prescriptions were thus filled gratuitously in 1910). I then re-examine the patient at my next consultation.

But it may happen that the child be very ill and require more assiduous care than that given him when he is brought to me twice a week. That is the very obstacle which compels me to give up a number of such patients and hand them over to the Hospital, for want of more efficient means to handle the cases.

Our institution has managed, however, save in few cases, to retain such patients, thanks to a system of domiciliary visits established for several years, where my prescriptions are faithfully and scrupulously filled—and I lay stress on that fact—by sick-nurses of the Home-School in charge of the Dispensary and who, moreover, record the temperature and other observations touching the patients.

Thus have we been able, by means of bathtubs lent out, to operate the treatment by cold baths and hypodermic injections, and I must say that our register is replete with serious cases which have had a successful termination. Plaisance Home for Aid to Mothers and Babes has thus far fully justified its name by being an abode of welfare for the nurslings. (In 1909, 1,270 domiciliary visits were made, and in 1910, 1,656.)

I have inaugurated this year—and I want to mention it as a novelty—a treatment by mother's milk which has brought about very good results. Many troubles of the digestive organs would readily disappear were the children fed with mother's milk, so life-imparting and so digestible. Well-to-do customers take a wet nurse in such cases. With us it is impossible, but I have found, and always find, when need there is, mothers having too much milk for their children and who are willing to nurse temporarily and thus treat the affections of the digestive tube. I have obtained in that way cures amounting to almost resurrections, and I believe that such treatment by mother's milk is an indispensable feature in an institution like ours.

When the children have passed the age of nursing, we still look after them and, at my consultations, I determine the several phases of weaning when the mothers do not attend to it in their own way. Plaisance Home for Aid to Mothers and Babes thus follows the children until they are three years of age. To ensure a simple alimentation easy to digest, we give the children malted flour, which is the basis of their

diet. Four hundred and eight orders were distributed in 1908, 551 in 1909 and 872 in 1910. As you see, the number of our customers is rapidly increasing.

But it is not sufficient to feed the child; there is another food which, while not going down the alimentary canal, is no less indispensable: I refer to oxygen. Now, most of the families we deal with are living in small tenements, regular dirty holes, where light and air are things scarce and only penetrate through sorts of loopholes overlooking dark and filthy yards.

Plaisance is specially wanting on that score, as it has no square or public garden; so much so, that figuring in all private gardens, a statistician has reckoned that each inhabitant of the 14th "arondissement" would have for his share, if all vacant space were allotted pro rata, an area of about three feet to promenade in. The wild beasts of the Zoological Garden have more room in their cages. Struck by that lack of salubrity in our ward, and knowing, besides, that in certain other countries, namely in Germany, a certain area of ground is reserved for children to play in (they are called Kinderspielplatz), I submitted to Mademoiselle Chaptal the idea of securing a garden or playground for our babies. Needless to tell you, my wish was listened to and realized with surprising alacrity. We have had for the last year and a half an atrium or square adjoining the school where we are and which you can see as you go out.

This garden, planted with trees and of an area of about 1,500 yards, is flanked on one side by a wall which is a protection against rubbish being thrown in. The other side is covered and may serve as a shelter; clean and tidy closets, concealed by a shrubbery, protect the sand from being soiled. Chairs and tables give mothers every facility to make themselves at home and do their work while watching over their children.

In an article published in the "Presse Médicale" last year, I have explained the necessity for a thorough consultation on nurslings to possess such an annex. I must say that that section of our institution has succeeded beyond our hopes and has proven that it answered an urgent need.

Only children free from contagious diseases are admitted to the Square, and it is only after a medical examination that they are given an admission ticket, which ticket is checked every month. A ward is charged with executing the orders and to see that the regulations are enforced.

The Square is divided into two sections by a trellis: one for nurslings and the other for children over three years old.

As we come under the ban of public regulations which assimilate such Square to an orphanage, we are not allowed to have at one time more than 30 nurslings under the watch of the mothers or of two wards assigned to the task. Mothers bringing along their nurslings will find there cradles and folding stools for the young ones, who are also provided with small settees, wooden shovels and buckets to play with on the clean gravel.

A yard completely closed and which can be heated in winter, is used for the children on cold or rainy days. It contains, moreover, a dressing-room for mothers and children and a section closed by a gate, where the cradles are disposed. There is also a special appliance to allow the mothers or the wards to keep warm the nursing bottles and cook the meals. Mademoiselle Chaptal, my assistants in the Dispensary and myself give assiduous attention to the hygienic state of that department.

The other section of the Square, reserved for children over three years of age, is not as well equipped, but for those children fresh air is all that is required. We have thought fit, however, to maintain that section for the benefit of mothers who are nursing and who otherwise would have to stay home to watch over their other children over three years, but not yet old enough to go to school. A limited number of children is not imposed to us for that section.

Little known at first, our square-annex was not well patronized then, but we have come to fear its being overcrowded soon.

Although at the end of 1909, 72 children only took advantage of that improvement, representing 1,314 days of fresh air; 289 children were admitted in 1910, aggregating 5,216 days for them and 1,681 for the mothers. In 1911, the same progress is keeping up, and in the past month of May alone 897 days of fresh air were given children in our Square. Those figures tell more than lengthy comments.

Although such Square or playground was a long step towards ensuring hygiene and the health of our young inmates, and by which the sick and weak could recuperate themselves, yet the idea lacked its full realization, as the Paris atmosphere is poor in oxygen, vitiated by deleterious emanations and decidedly not invigorating. We needed, to fully equip that branch of our institution, a real country house, a small sanitarium outside of Paris.

Thanks to a generous donation probably brought about by the diplomatic charity of Mademoiselle Chaptal, Plaisance Home for Aid to Mothers and Babes now owns its country house occupied in common with the Nurses' Home and situated at St. Andelain, in the Nièvre.

So it is that each year two contingents of ten little girls of our Dispensary can be sent to a pure atmosphere to recuperate their health during six weeks and that four mothers and their nurslings can also be accommodated there.

In addition to those the children that we have sent to other country places (by defraying their traveling expenses), our Home has been able to procure the benefit of fresh air to 21 children in 1908, 38 children and 5 mothers in 1909 and to 50 children and 5 mothers in 1910. There, too, as you see, our work has favorably progressed.

By the description I have given you, you have seen that our institution, equipped with the mechanism to make it useful and efficient, has reaped constant success.

Four hundred and ten children were enrolled in 1908, 507 in 1909, 723 in 1910 and 1,092 consultations were given. While in 1908 2,609 weights were recorded, we reached a total of 3,936 for 1910. Even though we are encouraging and strongly recommending nursing with mother's milk, yet 15,382 orders for milk were distributed in 1910.

During the same year were distributed to mothers either nursing or very poor: 5,115 orders for meat, 1,926 of farinaceous foods and about four tons of coal for heating and cooking purposes. And last, 1,156 domiciliary visits were made to the sick and 5,216 days of fresh air in our Square dispensed to children.

I meant to get all those figures together to show you the great vitality of Plaisance Home for Aid to Mothers and Babes, and such vitality is a first reward to Mademoiselle Chaptal for all that she has done towards realizing our present institution, to which I am proud of having contributed a certain help.

The results represented by those figures have made themselves felt everywhere. The idea cherished by Professor Budin is taking shape more and more as the number of nursing mothers is increasing continuously, thanks to our efforts. As a result, and owing to the hygienic precaution taken, sickness with our nurslings is diminishing from year to year.

Lastly, while infantile mortality in the 14th Arondissement varies around 9 per cent since several years, the mortality in the ward where we are settled has fallen to about 7 per

cent and to 4 per cent among the children under our care, although in the latter percentage are included the children already afflicted with serious organic diseases when brought to us and whom our efforts, thus handicapped, could not save.

What is the conclusion to draw from this statement which your indulgent attention may have found somewhat lengthy, if not that Plaisance Home for Aid to Mothers and Babes is an institution in full development, that in founding it Mademoiselle Chaptal has answered an imperious need, that in giving it our support towards completing it we are performing a noble duty?

To face such a great program, our enterprise is not possessed of vast riches. To its modest means, which, however, suffice for its operation, must be added the valuable support proffered in the shape of subsidies for several years, and notably in 1910, when 2,650 francs ($530.00) were granted us by the Ministry of the Interior and 700 francs ($140.00) by the City of Paris. Private charity which Mademoiselle Chaptal so well knows how to interest also adds its share to our resources.

The whole taken together represents a budget as large as 14,000 francs ($2,800.00). But we see every day so many improvements to make; the misery to succor is so great that we find our little fortune very paltry.

Fortunately, our Home for Aid to Mothers and Babes has so wonderfully developed for the last ten years, its management has been so successful that it has earned, together with our Home-School, the distinction of being officially recognized as an institution of public utility. It is now entering upon a new phase of its existence, and I take the liberty to recommend it to those who are interested in comforting human misery and to those who are fond of children.

Mademoiselle Chaptal is endowed with a faith in the future really contagious, coupled with a remarkable faculty for organizing which allows her to go forward with certainty and to build on solid foundation institutions which are really models of the kind like the one I had the pleasure to talk about today. That contagious faith in the future, I believe, I have caught.

Let us unite our earnest efforts and, thanks to our common zeal, Plaisance's youngsters will know the comfort of good health, mothers will wipe away their tears and Plaisance Home for Aid to Mothers and Babes shall proceed towards social progress for the benefit of the disinherited of life.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

REPORTS OF AFFILIATED SOCIETIES

Societies which have been enrolled as affiliated members of the Association were asked to indicate their activities during the current year, along the following lines:

(*a*) EDUCATIONAL
- Instruction of mothers in infant hygiene and infant feeding. in the homes or in social centers, under the direction of physicians or nurses
- Classes for mothers
- Classes for fathers
- Instruction in care and hygiene of infants, to pupils of elementary, secondary or normal schools; in departments of domestic science; or in colleges for women
- Distribution of literature (Please enclose copies)

(*b*) PREVENTIVE OR REMEDIAL
- Milk dispensaries and distribution of milk for mothers and babies, or both. State length of time in operation, whether during summer only, or throughout year
- Fresh air charities
- Hospitals or hospital care for babies

(*c*) MEDICAL AND NURSING SUPERVISION
- Consultations for mothers and babies
- Work of visiting nurses in social centers
- Follow-up work in the homes by physicians, nurses or social workers

(*d*) AFFILIATIONS
- What connection, if any, with Department of Health
- Co-operation or co-ordination with other activities, such as relief agencies, religious organizations, social settlements

(*e*) STATISTICAL
- Number of babies reached; results
- Contrast between general infant mortality and that in the territory covered by your society

(*f*) FINANCIAL
- How supported. Under public or private auspices

(*g*) LEGISLATIVE
- In re birth registration, or mortality statistics
- Protection of infant life
- Registration or regulation of midwives

(*h*) SOCIAL
- Improvement of home conditions
- Improvement of city milk supply

REPORTS

HEALTH DEPARTMENT

Baltimore

The special activities of this Department toward the reduction of infant mortality have as yet been directed along the following lines:

(*a*) Legislation. Our birth registration shows an improvement over former years, but is not more than 65 per cent of the births that occur. Our mortality statistics have been improved by sub-dividing the deaths that occur during the first five years of life into six parts instead of two. The six divisions are one to three months, three to twelve months, one to two years, two to three years, three to four years, four to five years.

During the year we have obtained a new registration of midwives, but our supervision over them is not yet satisfactory. Both of these will be improved with the organization of our Vital Statistic Bureau, which we hope to have in working order by the first of the year.

(*b*) Social. The improvement in our milk supply during the past year has not been much, if any, over the previous year, as far as the bacteriological count is concerned. The average temperature of milk received by the railroads was lower, and next year will be still lower, and if the Board of Estimates grants our petition we will be able to put four inspectors of dairies in the country districts instead of one, and increase our city inspectors three, making eleven. This, we believe, with the proportional increase in our laboratory force, will improve our milk supply.

THE COMMITTEE FOR THE PREVENTION OF INFANT MORTALITY

Birmingham, Ala.

Before attempting a description of the activities of our Committee, it seems advisable to first give a brief description of the organization. This was perfected in March, 1911, and was launched as a committee of the Associated Charities and called The Committee for the Prevention of Infant Mortality. As finances are a most essential part of any project, steps were immediately taken toward securing a budget sufficient, at least, to carry on the preliminary work. To obtain this, an operetta was given, entitled "The House That Jack Built," staged by Miss Martin, of Chicago. The net profit to our Committee from this and from advertising space sold on the programs was something over $1,200.00. Operations were immediately commenced. A seven-room cottage in the congested district of the city was rented and furnished. Correspondence was opened with various societies doing similar work in different cities, with a view to obtaining a nurse to inaugurate the work in Birmingham. On all sides the reply was that the

supply did not begin to equal the demand. Therefore, we were compelled to utilize local talent. The Committee was fortunate in securing the services of Miss Embry, a graduate nurse, of several years' experience. Miss Embry's interest in the sociological problem afforded by this work was at once enlisted, and the educational campaign in her district has been remarkably successful, in view of the general suspicion that always attends an enterprise of this character. It was found expedient to combine the functions of a day nursery with that of a milk station; this, on account of the aforesaid suspicion, seemed to be the best means of getting the much-desired confidence of the mothers with whom it is necessary to work. Two of the young medical men of Birmingham—Dr. Norborne Cocke and Dr. Alfred Walker—have given their services gratuitously during the past year, and Dr. K. Constantine has given his services as eye specialist. To the efforts of these men and the painstaking interest of Miss Embry and her assistant the remarkable success of the work is due.

There have been classes for the mothers at stated intervals, which have been addressed by one of the physicians and occasionally by the nurse, the instruction, of course, along the conventional lines.

The Milk and Baby Dispensary, the name selected, opened June 8th, 1911, with one baby in its care. The advance was slow, the greatest number during the balance of the month being four. In July, this increased to twelve, as the highest number, and in October, thirty was the high-water mark, with an average of twenty-two, running in age from the infant of a few weeks to the child of seven years. The functions of a day nursery are familiar to all present, so it is not necesary to go into detail in this matter. The combination of the work with milk station activities has not proven irreconcilable. That the confidence of the mothers is being gained is evidenced by the fact that a number have moved into the neighborhood of the station, that their children might have the benefit of its care.

The first of October it was necessary to move to a larger house. No particular change will be made during the winter months in the present method of operations. Milk of unquestioned purity is, of course, universally used for the children, and the importance of this emphasized wherever and whenever possible. Our nurse devotes a certain portion of each day to visiting work and lectures in the various factories where these mothers are employed. It is felt that the establishment of this work has filled a gap in social service in Birmingham, and it is receiving ready co-operation from existing institutions.

There is no affiliation with the Department of Health, nor connection with any other organization save that of the Associated Charities, under which association it was organized. The Committee, as it is, has a board of directors and officers. The support of the work has already been mentioned, but it might be well to add that in addition to the

public appeal, the work is supported by memberships of various classes, ranging from $1 to $100. It is the intention to inaugurate some plan in the near future for augmenting the present funds in the treasury.

The legislative status is not perfect, although sporadic activities have produced fairly complete birth registration. Midwives are supposed to be registered. The large negro population in our district practically forbids accuracy in compiling birth or mortality statistics.

The improvement of home conditions has not been as marked as would have been the case if the society had not felt the existence of certain limitations. It is hoped to begin operations along this line in the immediate future. The city milk supply is on the upward grade, owing to the earnest efforts of the City Bacteriologist, Mr. E. M. Duncan.

Our society is yet too young to weigh the future in the balance with the past. We can only hope, and if this hope is at all borne out by the facts, next year will enable us to give the American Association for the Study and Prevention of Infant Mortality a much more satisfactory report than the past five months has enabled us to do.

COMMITTEE ON CHILDHOOD HEALTH EXHIBITS

Boston

The activities of the Committee are as follows:

1. EDUCATIONAL:—Lessons of practical help to mothers taught in graphic form by Health Exhibits.
2. PREVENTIVE LINES:—Throughout the year.
3. A graduate nurse to demonstrate and amplify with talks on clothing, feeding and care of babies.
4. No affiliation, but co-operation, with other activities. To offer such exhibits at the request of Societies, Associations of Mothers' Clubs, etc.

Number of babies reached since July 1, 872 mothers and babies. Territory general.

Supported under private auspices.

COMMITTEE ON INFANT SOCIAL SERVICE OF THE WOMEN'S MUNICIPAL LEAGUE

Boston

During the last year the work in prenatal care done by this Committee has been carried on along the same lines as for the past two and a half years, but the results have been even more interesting and satisfactory than in the past. Although there have been several cases of threatened eclampsia,* none of them have developed. This is as it

*Since writing this, one case has developed (on November 13), but owing to the nurse's promptness in getting the patient to the hospital, both mother and child were saved.

has been since the beginning of the work, but one of the most interesting facts which the latest records make clear is that there has been a great decrease in the number of cases which show these threatening symptoms. During the first year the cases diagnosed as threatened eclampsia by the hospitals with which the Committee has worked numbered forty; in the second year there were but twenty such, and in the last six months there has been but one. This fact is very significant.

The premature births and miscarriages have shown a somewhat similar decrease. In the first year there were twelve premature babies and two miscarriages, the records of the second year show but five cases where the baby was premature and only one miscarriage, and though during the past six months the premature cases have reached more nearly the figures for the first year, there has been no miscarriage at all among all of our patients.

The general birthweight of the babies has continued to be from eight to ten ounces above the average as given by the highest authorities, and the weights from which our averages are calculated include all cases of premature children as well as several cases of twins and one or two sets of triplets.

The Committee is now beginning to develop its work along broader lines, for it feels that in its thousand cases it has proved beyond question the value of the work. That this opinion is shared by the Boston Lying-in Hospital is well shown by the fact that this hospital, last spring, established a prenatal clinic, and has now added to it a visiting nurse, in order that the hospital itself may now care for the patients hitherto taken care of for it by the Committee of the Women's Municipal League. This is a most satisfactory step and is exactly what the Committee is eager to see done by all similar institutions. The Boston Board of Health has also within the year begun caring for some of the poor women of the city during their pregnancy.

The larger work which the Committee is now undertaking is twofold; first, it wishes to get into touch with private physicians, especially those who have a class of patients unable to pay for frequent medical visits. The Committee is ready to have their nurse take such patients at the small charge necessary to pay the nurse's expenses. In the case of hospital patients this expense is between $2.50 and $3.00 per patient; with private doctors, however, it would necessarily be somewhat higher, as the nurse would have to take all orders from and report each case to its own physician, which would necessitate considerably more expenditure of time than where all this is done through one or two large institutions. The cost for each private patient would probably be about $5.00. This matter of having a nurse supplement the doctor by keeping him in constant touch with all of his patients, yet calling him in only when he is really needed, is a busi-

ness-like way of caring for patients, and one which it seems must in time commend itsef to the community. The Committee feels that it is by the frequency of its visits that it has been able to attain its gratifying record with regard to eclampsia, prematurity and miscarriage. These visits are made at least as often as once in ten days, even when all conditions are perfectly satisfactory, and no physician can afford to give so much time as this in order to prevent possible illness in a patient at the moment perfectly well when this object can be equally well accomplished at a greatly reduced cost through the employment of a trained nurse.

The second step forward which the Committee is making in prenatal care is even a further advance toward the goal of their ambitions—namely, to make care during pregnancy a matter of course for every woman—as much a matter of course as it now is that she should have care at the time of the birth of her child. For this purpose the Committee have a special nurse whom they are ready to send to any city or town, however distant, where people want to establish this form of preventive medicine—to help any community to get such work started along the lines which seem to have brought about such successful results. Any organization, anywhere in the country, that wants to have this nurse come to help them to start such work may communicate with the Committee at its headquarters at 49 Beacon Street, Boston, where all such communications will be gladly received.

MASSACHUSETTS MILK CONSUMERS' ASSOCIATION

Boston

The work of the Massachusetts Milk Consumers' Association has been directed primarily toward securing conditions of safety for the general milk supply of the people of the State. Valuable as are the milk stations and the many other private and semi-public agencies for securing pure individual milk supplies, it has been the belief of this Association that no radical cure of the situation can be effected unless the general milk supply of the State is made safe.

The Association was formed in June, 1910, for the sole purpose of obtaining efficient inspection and a pure milk supply, and to remedy the condition of the Massachusetts milk laws, which would be contemptible and absurd were it not that they are calamitous. Under the statutes of Massachusetts there is no power in any State official to prevent the production of unfit milk for sale in the State, or to prevent the bringing of unfit milk into the State for sale, and the 40 or 50 large cities and towns, containing the bulk of the population, have, as their sole means of protection, the efforts of their individual local

inspectors, who cannot by any possibility either cover by individual effort the main sources of supply, or prevent the ridiculous and vexatious duplication of effort in such inspection as they are able to give. It is only politics at the State House, and poor politics at that, that has long prevented the finding and application of a remedy.

The consumers had tried for two years through the Committee on Milk of the Women's Municipal League of Boston to accomplish this result, and found themselves at the end of that time but little further ahead than at the beginning, except for the gaining of experience. Through the work of that Committee it had become evident that a State organization was necessary, in order to awaken the voters to their interest and reach the ear of the Legislature.

The Association was accordingly formed, consisting of representative men and women from all over Massachusetts, the number varying in different districts according to the number of inhabitants. The total membership is only about 1,500, as that seemed a sufficient number to be representative and yet not large enough to be unwieldy. The object of this body is to obtain legislation to assure to the community a proper milk supply, putting the control of this supply in the hands of the State Board of Health.

The honorary president was the late Mrs. Julia Ward Howe; the honorary vice-presidents include two college presidents, the president of the Institute of Technology, leading business men from the larger cities of the State, the Catholic Archbishop, and a leading Jewish Rabbi, thus many interests are represented. The consulting medical committee consists of Dr. Rosenau and Dr. Theobald Smith. These gentlemen, with two counsel and a small executive committee of three, make up the more active members of the Association.

The general principles of the bill which the Association has been trying to secure in order to attain its object was introduced in the Senate in 1909, but only four Senators out of a total of forty voted in its favor. In 1910 it fared yet worse, but in 1911 (the first year after the organization of the Association) the bill passed the House by a vote of seventy-nine as against only forty-two in opposition, and in the Senate it received the favorable votes of sixteen Senators to only six who voted against it. This remarkable change in the attitude of the Legislature in the course of one year was doubtless due to the interest aroused in the quality of milk and to the education of the public in the importance of its being clean. The Association issued a series of bulletins, copies of which are enclosed with this report (other copies of which may be had by applying for them to the Chairman of the Executive Committee at 49 Beacon Street, Boston). These bulletins were mostly written by men of great eminence in their several lines. Besides these, the Association has issued many columns of newspaper material which the press of the State has been most kind in

printing without charge. Through unremitting effort by the Executive Committee and the Counsel, the bill at last became, in the eyes of the newspapers what they call "news" and the legislative battle appeared to be won. In spite of this sign of popular approval, a belated champion of the old order of things appeared. The Governor vetoed the bill in answer to the clamor of the more ignorant among the farmers, and the result of the recent election has shown that he gained a few hundred votes in the farming towns thereby, though how many he lost in the cities and towns cannot be told. The bill was just as much in the interest of the farmers as in that of the consumers, for it is a sound business proposition that what helps one helps the other, but it is hard to make ignorant people see the truth, particularly when the opposite is being poured into their ears by those demagogues for whose advantage it is to stir up class hatred. By the provisions of the bill the present competition with uninspected milk from other States would have been done away with, to the mutual advantage of producer and consumer, for all milk sold in Massachusetts must have come from dairies which had received a permit to sell their milk in this State. This would have protected the farmers' pockets and the consumers' lives. Besides this fundamental matter, milk would have been safeguarded throughout its transportation and distribution, all the way from the cow to the consumer. The conditions in small shops are often a very serious menace to health, and yet the poorer people deal with these almost exclusively.

The bill which the Governor vetoed was a compromise with the best element among the producers and gave them a voice, though not a controlling one, in formulating the regulations whose enforcement was left in the hands of the State Board of Health. The matter of enforcement is far more important than the drafting of regulations, for it takes a distinctly shameless man to be willing to put himself on record as advocating conditions dangerous to health, whereas the enforcement of good regulations requires courage.

The result for which this Association had striven was brought to a standstill by Governor Foss' veto. This veto he has since claimed in his campaign among the farmers was in defense of their interests, and to the consumers he has made other equally specious and quite contradictory claims. His re-election by a greatly reduced majority was due to general national political conditions, which do not affect the State Legislature or the attitude of the State consumer toward those legislators in case they fail in affording protection to their constituents. Our work for the coming year will be in further awakening the consumer to an understanding of dangers now existing to the lives of his family, and through him causing the Legislature to realize that protection must be given.

BABIES' MILK DISPENSARY

Buffalo

EDUCATIONAL. Mothers are instructed in their homes by nurses. Physicians give special instructions to each mother every week at weighing time. The nurses have a little mothers' class. (Girls from 14 to 20.) Plans are under way for classes in high schools. Literature distributed has been furnished by the Department of Health and copies of same are enclosed.

PREVENTIVE OR REMEDIAL. There are six dispensing stations, running throughout the year. They care particularly for well babies. A baby day camp was maintained all summer, where some sick babies were cared for as well as babies of sick mothers.

MEDICAL AND NURSING SUPERVISION. There are weekly consultations for mothers and babies conducted by the physicians. Two nurses devote all their time to the work of the organization and they are assisted by the District Nurses at the various stations. All the nurses are under the supervision of the District Nursing Association. The follow-up work by the nurses has been fairly successful.

AFFILIATIONS. The Department of Health furnishes literature in all languages which are necessary, and also analyzes the milk semi-weekly. The Charity Organization Society investigates for us and gives us office room. The Settlements co-operate cordially.

STATISTICAL. Two hundred and twenty-nine babies were registered this past year. One hundred and thirty-six remained over a period of three weeks. Two died. Death rate among babies cared for by the Dispensary was .0087 per cent. The infant death rate in the City of Buffalo for the year 1910 was 18 per cent. of the number born. In August, 1910, the infant death rate for the city was 39 per cent. of the total deaths. Four new stations of the Babies' Milk Dispensary were opened in 1911 and the infant death rate for August, 1911, was 21.4 per cent. of total deaths, a decrease of 17.6 per cent. While we do not believe that we were solely responsible for this great decrease, yet we do believe that we were an important factor.

FINANCIAL. The organization is supported by private contributions. Last year the receipts for the sale of milk were about one-half the cost of the milk.

LEGISLATIVE. The Department of Health is very active in all that pertains to birth registration and mortality statistics, and also in protecting infant life.

SOCIAL. Home conditions have shown a marked improvement wherever the Dispensary nurse has entered. There have been some very remarkable instances.

The Department of Health is very active in regard to the general milk supply of the city.

INFANT WELFARE SOCIETY

Chicago

Realizing the necessity for a much more thorough and comprehensive work than was done by the Milk Commission, the work since January first has been that of reorganization. The name was changed to indicate the broader scope of the work.

The Stations are located in the congested districts, where the death rate is high. Here the work is prophylactic.

Conferences are held twice a week with the mothers, physicians and nurses. These conferences have been well attended, the mothers being given guidance, direction and encouragement. These Stations will be continued throughout the year.

Through the generosity of Borden and Co., certified milk can be delivered to the home at a cost of ten cents per quart. Home modification is being done by a large number of mothers, and proving successful. In some cases, however, where home conditions make modification impossible, we are furnishing certified milk in three mixtures.

The milk laboratory on West Adams Street has been closed and the milk mixtures are now being prepared by Arthur Meeker at the Arcady Farm. Only certified milk is used, and the milk bottled and shipped in ice to the Stations in Chicago.

The educational campaign of the Society has been carried out by conferences in the Stations by physicians and nurses, mothers' clubs and classes for young girls in the care and feeding of the infant.

The principal activities of the Infant Welfare Society are: Ten Stations, a General Superintendent, a Medical Director, twelve physicians in charge of the Stations, one Supervising Nurse and nine Graduate Nurses. There is a close co-operation with all of the existing agencies.

Report of work from January to November, 1911:

Number of conferences held, 644.

Total attendance at conferences, 6,643.

Total number of babies cared for, 1,826.

Number of deaths of babies under our care for two weeks or more, 64, or 3.3 per cent.

Number furnished Certified Milk and taught Home Modification, 675.

Number of visits to homes by nurses, 12,896

BABIES DISPENSARY AND HOSPITAL

Cleveland

(*a*) EDUCATIONAL. The Babies' Dispensary and Hospital give instructions to mothers in Infant Hygiene and Infant Feeding in the homes through the nurses in social centers, with talks by physicians and nurses and by stereopticon lectures by physicians. The only classes for mothers and fathers that we have are talks given to them when

they are at Dispensaries. The course in the high schools in the care and hygiene of infants has been planned, but as yet not executed. Our literature is distributed very widely through Dispensaries, nurses, lectures, etc.

A Neighborhood Health Exhibit is being sent to all parts of the city, remaining at least one month in each district. This is supported by various co-operating agencies.

(*b*) PREVENTIVE OR REMEDIAL. There are six Prophylactic Branch Dispensaries, with sixty milk stations (the stations are simply places where mothers get the milk, no doctor or nurse in charge). The Dispensaries are open three times a week throughout the year. We have an Outdoor Ward open during June, July and August, where hospital care is given for babies, with very close co-operation with the Fresh Air Camp, which takes many of our babies during the summer.

July 10, the Board of Health opened five Prophylactic Dispensaries, making, in all, eleven.

(*c*) MEDICAL AND NURSING SUPERVISION. All work is supervised by physicians and nurses. Our visiting nurses report at Central Dispensary every day and four of our branches are in settlement houses. The nurse visits every case at least every two weeks.

(*d*) AFFILIATIONS. Prophylactic Branch Dispensaries, with 10 physicians, 17 nurses, 4 clerks, are supported by the Board of Health. The Medical Director of the Babies' Dispensary is also the Director of the Bureau of Child Hygiene at the Board of Health. The Dispensary works in very close co-operation with all organizations of the city.

(*e*) STATISTICAL. October, 1910—October, 1911.

Total attendance, 14,905.

Total number of new patients at Dispensaries, 3,574.

Total number of visits, 33,353.

The mortality rate for the past year is 3.97 per cent, as compared with 7.6 per cent for 1910, 8.8 per cent for 1909, 8.8 per cent for 1908, and 14 per cent for the year 1907, which included, however, the summer of 1906. These figures do not, however, give the actual mortality rate, even though no infants are discharged from the charts and nurses' books until they have passed the first 12 to 15 months, and although the name of every child who has died has been placed on our mortality record, whether he has been at the Dispensary 12 days or 12 months, or whether our physicians have had charge of him, or a physician absolutely unknown to us. This plan is followed in order to get as close to the actual mortality rate of all children whose names have been in any way placed on our records as we possibly can.

The above figures show a marked reduction, but it must not be forgotten that during the past year we were able to get many more well babies to come to the Dispensaries than heretofore. This was due to the increased development of the individual Branch Dispensaries.

During the past year 13,371 births were reported and 1,829 deaths under one year, making a mortality rate for the city at large for infants under one year of age of 13.68 per cent, as compared with 15.1 per cent during the report year of 1910.

(*f*) FINANCIAL. The work is entirely supported by private contributions. Inasmuch, however, as the City of Cleveland appropriated $10,000 for infant mortality work for six months, to be used by the Board of Health, and inasmuch as there was in the application of this money a most intimate co-operation between the Board of Health and the Babies' Dispensary and Hospital, there was an indirect public support of this work.

(*h*) SOCIAL. Home conditions improved by continuous visits of the nurses. Babies' Dispensary milk delivered throughout the city. Municipal dairy-farm is planned for and expected to be in operation some time this year.

BABIES' MILK FUND OF DETROIT

Detroit, Mich.

This Society was reorganized in June, 1911, having previously simply furnished milk for children of needy mothers. Our work is, therefore, still in process of development. We are proceeding along the following lines:

(*a*) EDUCATIONAL. Instruction of mothers in hygiene and feeding, both in homes and social centers, by nurses and physicians. Classes for mothers and girls. No classes as yet for fathers. No literature at present except small leaflets on feeding.

(*b*) PREVENTIVE OR REMEDIAL. Milk dispensaries, open throughout the year, furnishing milk for both mothers and babies.

Clinics for sick children in districts not reached by other clinics.

Fresh-air charities—one experimental of our own—open in summer. Co-operation with "Bay Court" fresh-air charity for mothers and children.

Hospital care. Co-operation with Children's Free Hospital.

(*c*) MEDICAL AND NURSING SUPERVISIONS. Consultations for mothers and babies at our own clinics and four others working in co-operation with us, to which we furnish milk.

Visiting nurses are at work in all these clinics, most of which are established in social centers.

All cases are followed up in the homes by nurses, and at times by physicians.

(*d*) AFFILIATIONS. No connection with Board of Health, but co-operation.

We have furnished milk for cases handled by the Board of Health nurses.

We are affiliated with the Children's Bureau of the Associated Charities, and co-operate with all the other child-helping organizations throughout the city, such as the S. P. C. C., The Home Finding Society, etc. Also with the Visiting Nurse Association, The Girls' Protective League, in connection with which we maintain one social center; and the various social settlements. We have no connection with any religious organization.

(*e*) STATISTICAL. Our work is too new to give any satisfactory statistics.

(*f*) FINANCIAL. We are supported by private contributions, which have amounted to about $5,000.00 this year.

(*g*) LEGISLATIVE. We have done nothing in this line.

(*h*) SOCIAL. The work for improvement of home conditions is part of the work of the visiting nurses, the classes, etc.

The improvement of the city milk supply is left to the Board of Health and the Wayne County Milk Commission.

At the time of our reorganization the city was already supplied with a Children's Free Hospital and with clinics for children which met the needs of most of the city. We have aimed to meet the unsupplied needs by an educational campaign, by furnishing clean milk, by establishing clinics in certain remote districts, and in any other way which presents itself. We have in contemplation the establishment of a wet nurse bureau shortly.

INFANT WELFARE DEPARTMENT, DULUTH CONSISTORY, SCOTTISH RITE MASONS

Duluth, Minn.

The activities of the Department have been along the following lines:

(*a*) EDUCATIONAL. Home instruction of mothers in infant hygiene, teaching modification of milk where necessary.

Semi-monthly classes for mothers (nurse acting as instructor), urging maternal nursing, instructing them how to bathe, dress and feed their babies.

(*b*) PREVENTIVE OR REMEDIAL. Hospital tent for babies (in connection with The Bethel Home) during warm weather only; babies cared for night and day; two nurses in charge during day and one at night.

A nurse, being employed by the Associated Charities, gave some of her time for tent work.

(*c*) FINANCIAL. Supported by the Scottish Rite Masons of Duluth, one nurse being employed.

THE BABIES' DISPENSARY GUILD

Hamilton, Ontario

Our Babies' Dispensary Guild began active work on the 22nd of June last, the objects being to "combat the preventable infant sickness

amongst the poor by providing free medical advice, nurses' care and instruction in the home, and by helping needy parents keep their healthy infants well and assist them in healing their sick babies, and generally to do all such other things as are incidental or conducive to the attainment of the above objects."

Since opening our Dispensary we have held daily clinics, with physician and nurse in attendance, at which, up to the 30th of September, 140 babies have been regularly presented for examination and direction as to proper feeding, etc.

For the instruction of the mothers, daily demonstrations are held at the Dispensary as to the proper preparation of the baby's food, and these are followed up by the nurse visiting the homes and giving further individual instruction as to the care of the baby, with suggestions (after friendly relations have been established) as to proper ventilation, light, general cleanliness and care of the family.

The Dispensary provides certified milk for such babies as need it, at one-half the regular price, and also provides at wholesale rates such articles as feeding bottles, nipples, brushes, catheters, barley, etc., as required in the proper care of the infants.

The City Health Officer is a member of our Medical Board and all cases requiring his attention are duly reported.

The City Relief Officer renders us valuable assistance in the matter of investigation and supplying further relief when necessary.

We are supported by membership fees and private contributions with a small civic grant.

The following statement gives the results of our work for the period mentioned:

Admission and Attendance. New Cases—June, 7; July, 54; August, 58; September, 26; total, 145.

Total Daily Attendance—June, 12; July, 127; August, 200; September, 201; total, 540.

Results. Total number of babies in attendance, 140. On admission, 87.1 per cent were seriously ill. Improved in health, 114—81.4 per cent. Not improved in health, 14—10 per cent. Deaths, 12—8.6 per cent.

No baby died which had been under our care over two weeks. One baby died while under our care only three days; it came in desperately ill. Eleven died under outside care. Six were in attendance less than one week; five were in attendance less than two weeks.

Amount of Milk Delivered	Pints	Quarts
June	31	24
July	593	234
August	1,236	659
September	1,229	598
Total	3,089	1,515

CONNECTICUT CHILDREN'S AID SOCIETY

Hartford, Conn.

The administration of our work is from a central office located at Hartford, Conn., where all applications for relief for children are made. We have no building devoted to classes. Children of all ages and nationalities are received and given temporary care as needed.

Crippled and ailing children are sent to our Home at Newington, seven miles in the country.

Children needing operations are sent to our city hospitals at reduced rates.

Children are examined by our board of physicians free.

Appliances are provided such as braces, glasses, crutches, etc.

Boarding homes in private families are provided for children, many of them infants. One hundred and four new boarding cases during year ending October 1, 1911.

Normal children are placed in free family homes.

Children are sent to the country and to our seashore cottage at Milford, Conn.

Advice is given to mothers whenever possible about care and feeding of infants; also to foster mothers who board babies. We have distributed a number of copies of Dr. Brown's book, "The Baby," to our women who board children.

No milk dispensary. Children with their mothers are sent to the country for fresh air. Mothers and babies are sent from June 1 to September 15 to our seashore cottage at Milford, Conn., with good results. This Home accommodates forty, and each party remains two weeks. We also have 25 boarding homes for children.

We have a board of eight consulting physicians and surgeons, and twelve visiting physicians, and others who render free service in examination and treatment. All the above mentioned act without pay.

Our co-operation with local societies is constant. No special co-operation with Department of Health. The Visiting Nurses we may call upon at any time. The Babies' Hospital is a great aid in summer work. We have use of a free bed in New Haven Hospital and reduced rates in other hospitals.

Probably 75 babies cared for during the year just closed (October 1, 1911). Deaths among little children in care very few. Our effort is along preventive lines.

Our Society is supported by private contributions and has been maintained for nineteen years as a general society for the relief of children. We have no State aid except for children who are committed to our Home for crippled and ailing children when $3.00 per week is paid for the State, and one dollar per week for towns or guardians.

PURE MILK COMMISSION OF THE CHILDREN'S AID ASSOCIATION

Indianapolis

(*a*) Educational. The instruction of mothers in infant hygiene and infant feeding is carried on chiefly in the homes by trained nurses. Their work is supplemented by weekly demonstration-interviews with physicians at the station clinics and by the distribution generally through the neighborhood of literature prepared by the State and City Boards of Health.

(*b*) Preventive or Remedial. The milk dispensaries or stations are located in crowded sections of the city. Six of these were open during the summer season (June 1st to September 30th), and four are being maintained during the winter. The milk for distribution at these stations is obtained from one dairy on contract that it must be of certified quality. The bacterial count has averaged about 4,000 per cubic centimeter.

Simple modifications are made at the stations or in the homes by the mothers and the nurses in charge. During the summer the more complex modifications were made at the laboratory located at the dairy farm, but this has been discontinued for the winter.

Very sick babies were occasionally taken in charge entirely by the nurse and cared for during the day at the station, while others were sent to the fresh-air mission for brief periods.

(*c*) Medical and Nursing Supervision. During the summer each station was under the supervision of a trained nurse. For the winter the work at the four stations is under the supervision of one nurse. At each station a physician volunteers his regular services once a week and may answer emergency calls at any time. The nurse is at the station two hours each morning and spends the rest of the day in visiting.

(*d*) Affiliations. The entire work of the Milk Commission is closely associated with the City Board of Health and is subject to their supervision. The stations themselves are located in churches or social settlements. A number of churches assisted also in an organized way in supplying funds for the work.

Those parents who were unable to pay the regular price asked for the milk (8 1/3 cents was the amount charged) were visited and recommended by the trained social workers of The Children's Aid Association or were given the milk at a smaller price upon the recommendation of some other agency.

(*e*) Statistical. The number of babies registered for feedings has been 345. Among these there were eight deaths. At least four of these deaths were due to wilful failure of parents or guardians to comply with the instructions of physician or nurse and need not have

occurred. The eight deaths represent a death rate of about 2½ per cent as against the usual city death rate of 8 to 15 per cent.

(*f*) Financial. The work is supported jointly out of public and private funds, each supplying about one-half of the cost. The total cost for the year will amount to about $6,000.00.

(*g*) Legislative. No legislation referring particularly to the care of infants was attempted at the last session of the Legislature. At the previous session a very thoroughgoing act was passed placing in the hands of the State Board of Charities close supervision of all Orphan Asylums and Children's Homes, Day Nurseries, Maternity Hospitals, Private Boarding Homes and placing-out agencies. This act has already resulted in the closing up or cleaning up of a considerable number of abuses.

(*h*) Social. A Tenement House Reform law was introduced at the last session of the Legislature, but failed of passage.

A law was enacted authorizing the City of Indianapolis to levy a tax of ½ cent on each $100 of taxables, for the establishment and maintenance of playgrounds under the supervision of the City Board of Health.

The quality of milk supplied in Indianapolis is fair. No certified milk is being sold here, however, a Walker-Gordon plant established here five years ago having failed. Members of the Milk Commission have been endeavoring to have some form of the certified milk business re-established.

THE BABIES' MILK FUND ASSOCIATION

Louisville, Kentucky

The Babies' Milk Fund Association of Louisville, Kentucky, resumed its work on May 1st, 1911, by opening four Pure Milk Stations, which will be operated not only during the summer months, as heretofore, but throughout the year, thus marking the inauguration of a continuous campaign to conserve the health of the infant population.

(*a*) Educational. The Association has responded to frequent calls for talks on Infant Hygiene and Infant Feeding, which have been given by physicians and nurses; members of the Executive Committee have explained the purpose of the organization and the relation of its operations to public health.

Many groups of mothers have been reached through Kindergarten Mothers' Clubs, through Parent-Teachers' Associations, Settlement Mothers' Clubs, and Church Home Missionary Societies.

The daily newspapers have given much space to stories and pictures illustrating the work being done. Pamphlets on "The Care of the Baby" and Reports of the work of the Association have been distributed.

(*b*) PREVENTIVE OR REMEDIAL. The Association maintains its own Laboratory for the modification of milk and the weekly bacterial counts made testify to the accuracy and care in this department. At the Pure Milk Stations certified milk, both whole and modified, is distributed to infants, children under five years of age, and nursing and expectant mothers.

A large number of mothers and babies were referred by the nurses and physicians to the Recreation League for admittance to the Fresh Air Home. The benefit of the two weeks' outing is not easily estimated; doubtless, it was the means of saving lives.

The Children's Free Hospital provides ample accommodation for those infants requiring such care. Other hospitals receive babies upon request.

(*c*) MEDICAL AND NURSING SUPERVISION. At each Station weekly conferences have been conducted by competent physicians, assisted by a corps of well-equipped graduate nurses. The conferences this year have been characterized by a marked increase in attendance, especially among mothers of well babies, who came seeking encouragement as well as advice. The nurses keep in constant touch with the home life, assisting in the nursing of sick babies and instructing the mothers and older sisters in the care and handling of infants.

The Visitors' Committee, a volunteer board of women, does follow-up and relief work, co-operating with the Associated Charities.

(*d*) AFFILIATIONS. The nursing staff reports violations of sanitary regulations to the City Health Department and co-operates in every effort to bring about better conditions.

(*e*) STATISTICAL. Total registration, May to November 1st, 699; total number babies fed, 314; visits by the Association nurses, 7,597; total deaths during the summer, 12, making the death rate 3.8 per cent for the 314 children fed; of those fed one month or more, only 1.5 per cent. The death rate for children under one year of age is less than one-half of that shown by the city at large during the last five years.

(*f*) FINANCIAL. Appropriations by the City Council and the Jefferson County Fiscal Court, in addition to the fund raised by private contributions from the philanthropic citizens of Louisville, have made it possible not only to maintain the Laboratory and Stations, but also to sell milk below cost and furnish it free when necessary.

VISITING NURSE ASSOCIATION

Milwaukee

Starting in the early part of February, the Visiting Nurse Association maintained two nurses as Baby Welfare Nurses. We selected the ward having the largest birth and death records in which to com-

mence our work. The Health Department gave us a daily report of birth records, thus making it easy for the nurse to reach the baby before it was ill.

The nurses followed up each case, their task being to keep the baby well by encouraging breast feedings and teaching the mother how to care for her child and avoid the preventable diseases which claim so many.

In July our Association became affiliated with the Child Welfare Commission to the extent of giving the services of the two nurses who had previously commenced the work in February.

During the summer months of 1910 and 1911 the Association maintained two Day Camps for sick babies. The mothers were taught how to care for the child's body, the preparation of food formulas and simple treatments. A physician was in daily attendance at each Camp. We cared for 175 babies during the two seasons. Our follow-up system of visiting the babies in the homes kept us in touch with all babies cared for at the Camps and the results were very gratifying.

INFANT WELFARE SOCIETY

Minneapolis

(*a*) Education. Instruction of mothers in infant hygiene and feeding in the homes and at the consultation, by physicians, and in home by nurse.

Classes for Mothers. Addresses by medical director and others to Mothers' Clubs at stated times on topics of infant hygiene and infant feeding. Instructions in these subjects now at the State University and State Agricultural College. It is on next year's program for high schools and eighth-grade pupils.

No literature distributed for lack of funds—except the National Association literature.

(*b*) Preventive or Remedial. No milk station. Some milk provided by Associated Charities throughout year. A few milk depots are contemplated; also a plant similar to the one conducted by the New York Dairy Demonstration Company, at Homer, New York. Fresh-air camps were opened during the summer. Some mothers with their babies were received there. Very ill infants are sent to the large baby tent of the City Hospital. They pass temporarily out of the care of this Society when they enter there. Northwestern Hospital offers five beds and St. Barnabas two beds for infants too ill to be cared for in the homes. The nursing and care for the babies in these institutions is excellent.

(*c*) Medical and Nursing Supervision. One consultation (central) for mothers and babies. Three branch consultations contemplated.

One visiting nurse who gives her entire time.

One social worker who gives most of her time to this work.

Two nurses from the Associated Charities, who give part of their time, and a visiting housekeeper, who gives part time.

One medical director—who at present conducts the work at the central station.

(*d*) The Health Department is represented by the Committee of Health. The Associated Charities by two members of their Board. The Humane Society by two members.

The hearty co-operation of these organizations is promised. The work is conducted at present in the social settlement centers and these are giving it their warmest support.

(*e*) Three hundred visits have been made to the consultation by mothers with babies.

(*f*) FINANCIAL. Private donations.

(*g*) LEGISLATIVE. Repuirements for birth registration and mortality statistics are very rigid. There is no definite regulation for midwives.

(*h*) SOCIAL. Woman's Club is very active in the improvement of home conditions. The Department of Health and this organization, also the Hennepin County Medical Society, are very active in the improvement of the city milk supply.

PURE MILK COMMITTEE OF THE CONSUMERS' LEAGUE

New Haven, Conn.

EDUCATIONAL. Instruction of mothers in infant hygiene and infant feeding, in homes, by trained nurse.

PREVENTIVE OR REMEDIAL. Milk dispensaries and distribution of milk for babies in operation June to November.

MEDICAL AND NURSING SUPERVISION. Follow-up work in the homes by nurses.

AFFILIATIONS. The Association is organized as a sub-committee of the Consumers' League.

STATISTICAL. Number of babies reached, 258.

FINANCIAL. Supported by private subscriptions.

SOCIAL. Improvement of home conditions.

COMMITTEE ON PREVENTION OF BLINDNESS

Infant Welfare Work—November 1, 1910 to November 1, 1911

New York City

The work of the New York Committee for Infant Welfare, along educational lines, has consisted of the distribution of 5,650 of its pamphlet No. 2, "Children Who Need Not Have Been Blind," and 8,470

copies of No. 4, "Directions to Mothers, Midwives and Nurses for the Prevention of Ophthalmia Neonatorum," printed in five languages. Forty-four lectures and talks on the subjects of midwifery and ophthalmia neonatorum have been given to women's clubs, mothers' clubs, in settlements, day nurseries, churches and schools, to collegiate alumnae and undergraduates, to graduate nurse associations, graduate and pupil nurses, at nurses' conferences, the conferences of workers for the blind and for the prevention of blindness, the conferences of charities and correction, and at the meeting for the prevention of infant mortality. The Committee's exhibits on ophthalmia neonatorum have been shown at fifteen conferences, and its lantern slides used by prevention of blindness workers in eight States, as well as by the Louisiana and Indiana State Boards of Health.

The Committee has continued its investigations into the subject of ophthalmia neonatorum, in the form of correspondence with hospitals throughout the State of New York, to ascertain how complete is the provision for the reception and care in hospitals of ophthalmia neonatorum patients. The results of this inquiry showed a need for further provision. Letters of inquiry have also been sent to the schools for the blind throughout the country, for the purpose of securing information to date in regard to the number of students blind from opthalmia neonatorum. In 17 schools, 521 pupils, or 25 per cent of the total number of students, were needlessly blind as a result of ophthalmia neonatorum. Information from fifteen of these schools showed that the proportion of pupils entering for the first time who were blind from this disease remained approximately 25 per cent—as in preceding years.

The Committee has been co-operating with the New York City Department of Health, to bring about the enforcement of the law which makes the reporting of ophthalmia neonatorum obligatory. To this end, all cases reported from eye hospitals in the city have been investigated, for the purpose of learning whether the inflammation occurred during or after the doctor's or midwife's visits, and at whose instigation the child was taken to the hospital.

The Committee, in the continuance of its study of the midwifery problem in this and other countries, has collected rules and regulations and information regarding actual conditions of practice from 16 foreign countries as well as the United States. To learn more definitely of the provisions for midwifery control in England, the Secretary has been spending the present month in personally inspecting the system in that country, hoping that the information obtained at first hand may be of assistance to the Committee in shaping legislation for this State and in many other ways. Cordial relations of co-operation have been established with the State and City Boards of Health, with State and county medical societies, with national and local societies

for prevention of blindess, with national and State graduate nurses' associations, as well as with the American Association for the Study and Prevention of Infant Mortality. Committees on midwives have been formed by the last-named Association, by the American Association for the Conservation of Vision and by the American Association of Superintendents of Nurses' Training Schools. Attempts to interest nurses in visiting obstetrical nursing work has been begun, through the "Visiting Nurse Quarterly" and through the Section on Nursing and Social Work of the Infant Mortality Association.

A training school for midwives has been established in New York City in connection with Bellevue and Allied Hospitals, largely owing to the interest excited and efforts made by the Committee, and it is earnestly hoped that schools of reputable standing may soon be established in other parts of the State. To try to secure the standardization of all schools of midwifery and State control of the training and supervision of midwives will constitute an important part of the work of the Committee during the coming winter.

In its legislative work, the Committee has supported the State Commissioner of Health in his successful application for a renewal of the grant of $5,000 in the supply bill for 1910, to make possible the free distribution of prophylactic outfits for the prevention of blindness from ophthalmia neonatorum. It has also supported a bill prepared by the State Department of Health, to amend the law requiring that all birth certificates shall be returned within 36 hours, the amendment providing that in addition to a simple notification of birth within 36 hours, there shall also be a certificate, returned within five days after birth, to meet the requirements of a more complete record for the Bureau of Vital Statistics. This amendment became a law.

NEW YORK DIET KITCHEN ASSOCIATION

New York City

The New York Diet Kitchen Association, supporting nine milk stations for the distribution of pure milk to babies, nursing mothers, as well as to tuberculosis and other cases of general illness, would report as regards its baby work as follows:

(*a*) The Association in one station has a regular course of lectures for instruction of mothers in infant hygiene and feeding, and in all its stations mothers receive instruction at the conferences. (See *c*.)

Literature furnished by the Department of Health is distributed by all the stations.

(*b*) The Association maintains nine stations where certified milk is dispensed to babies and nursing mothers at six cents ($.06) a quart throughout the year.

(*c*) Conferences for mothers and babies with doctors and nurses in attendance are held weekly in all the stations nine months of the year, but daily in the four heaviest stations, and twice weekly in the remaining stations during the summer months.

Nurses and matrons give constant instruction to mothers in the stations.

Follow-up work in the homes is carried on by same.

(*d*) The Association affiliates with the Department of Health, by whose doctors and nurses the conference work in six stations is carried on. It co-operates with charitable agencies, religious organizations, social workers, etc., by honoring all requisitions sent in by same.

(*e*) Number of babies reached, 3,000; number of deaths from all causes, 55.

(*f*) Supported by private funds.

METROPOLITAN LIFE INSURANCE COMPANY INDUSTRIAL DEPARTMENT

New York City

As heretofore, our activities within the past year have been limited to the distribution of literature on the subject. Some time ago we printed 250,000 copies of a circular issued by the Department of Health on the "Summer Care of Sick Babies," which were distributed among our policyholders in New York City. During the past summer we distributed in Greater New York a number of cards issued by the New York Committee for the Reduction of Infant Mortality, giving a list of Babies' Pure Milk and Health Stations. We have on the press a booklet, entitled "The Child," the chapters in which read as follows: 1. The Home. 2. Preparing for the Baby. 3. The Baby Up to One Year. 4. The Runabout Baby. 5. The Child of School Age. 6. The Sick Child, and, 7. Emergencies.

DEPARTMENT OF HOME ECONOMICS, CORNELL UNIVERSITY

New York State

(*a*) EDUCATIONAL. 1. In the four-year course in Home Economics considerable work is given in the care and feeding of children, as well as in sex hygiene. The students taking this course expect to be teachers or to take up types of work where such instruction will be of ultimate importance to them. The Winter Course and the Summer Course and a course especially planned for students of the Arts College all incorporate a certain amount of this work, sufficient, we hope,

to enable them, if not to teach it, at least to follow the teaching in their own homes.

2. Mothers' meetings, parents and teachers' associations and various clubs throughout the State of New York are visited during the year, where talks are given on the care and feeding of children.

3. Bulletins are sent out by the department in the Cornell Reading Courses for the Farm Home. This year a revised edition of Part I of the bulletin on the Care and Feeding of Children and Part II of the same bulletin will be sent out to 20,000 women of New York State. It is impossible to estimate how many people this reaches. But it is safe to say that this work finds its way into a great many homes and will have at least some effect in helping the mothers to give more intelligent care of their children. We are not affiliated with any other organizations in our work and all we are doing is along educational lines.

THE DIET KITCHEN OF THE ORANGES

Orange, N. J.

We have had two dispensaries and one delivery route running throughout the year, Sundays and holidays included. Our Main Kitchen has been open daily for the distribution of milk, eggs, modified milk, beef and orange juices. Branch open one hour daily to dispense milk and eggs.

Instruction given to mothers, by our trained nurse, in infant hygiene and infant feeding, through means of consultation classes held one day each week in connection with both kitchens.

Homes and babies visited by our nurse and social worker, the latter investigating home conditions, etc.

We co-operate with the Children's Aid, Poormaster, Bureau of Charities, City Physicians and Nurses' Settlement.

Number of babies reached, 133, with splendid gain in health on the whole, and only four deaths, three due to pneumonia and one to meningitis.

Society is supported by kitchen receipts, in part by cities of Orange and East Orange, but mainly by voluntary contributions.

THE CHILDREN'S AID SOCIETY OF PENNSYLVANIA

Philadelphia

(*a*) EDUCATIONAL. Through its Department for Mothers with Infants an effort is made to provide for the instruction of such mothers in infant hygiene and infant feeding. The Society joins with other agencies from time to time in general movements in the community having for one of their objects the education of mothers in the care of

their infants. In the matter of the distribution of literature, the Society has co-operated with the Health Department.

(*b*) PREVENTIVE OR REMEDIAL. The Society does not conduct milk dispensaries for mothers and babies. To some extent the Society conducts educational work along the lines which are both preventive and remedial in their ultimate effect.

(*c*) MEDICAL AND NURSING SUPERVISION. In the case of mothers with infants applying to the Society, examination by doctors is practically always secured. In the case of young infants kept in the Society's temporary boarding homes (selected private families), a trained visiting nurse from the Society's staff supervises them in these homes.

(*d*) AFFILIATIONS. The Society has co-operated with the Philadelphia Department of Public Health and Charities both in educational work and in movements to promote greater efficiency on the part of various public agencies whose activities are designed to prevent infant mortality. In addition to this, the Society is in active co-operation with various relief agencies, religious organizations and social settlements.

(*e*) STATISTICAL. During the year 1910 the Society's Department for Mothers with Children placed 256 women, each with an infant or young child. In addition, the Society cared for 84 infants* under two years of age in the boarding-out department. These infants were received because they had to be cared for apart from their mothers. This was done by placing them at board in private families.

Not having the statistics concerning infant mortality for territory covered by the Society, it is not possible to contrast that with the mortality of the babies that the Society has in care.

(*f*) FINANCIAL. The work done by the Society along the lines indicated above is supported in part by private contributions and in part by State aid and per capita payments from city and county treasuries. The Society is incorporated and is controlled by a Board of Directors.

(*g*) LEGISLATIVE. We have nothing definite to report for this year.

(*h*) SOCIAL. In co-operation with other special agencies, the Society seeks in various ways to improve the home conditions under which children live in the congested quarters.

PROVIDENCE DISTRICT NURSING ASSOCIATION

Providence, R. I.

(*a*) EDUCATIONAL. The Association provides special nurses for the children's work. The work of these nurses is entirely advisory and instructive. If the babies or children visited require actual nursing

*This includes old cases on hand January, 1910.

care, this is accomplished by the nurses on the general staff in whose district the patient resides.

Lectures and demonstrations are given in the schools for teachers and parents; and elsewhere, upon request.

(*b*) PREVENTIVE AND REMEDIAL. Practically the entire work of the children's nurses may be considered preventive and remedial.

During the summer months two Day Camps for Babies are open in the congested sections of the city. The cases are chiefly those of feeding. This past summer the mortality was lower, although unusually hot weather prevailed. This was attributed in large part to the educational work of the winter, the object lesson of the Camps, and good care given by the physicians in charge. That the babies may be kept upon the same feeding, the mothers buy a supply when taking the babies home for the night for a nominal sum. The children are kept in tents or under the trees during the day.

A babies' ward has been opened in connection with the Rhode Island Hospital during the last year.

(*c*) MEDICAL AND NURSING SUPERVISION. In the Italian district last winter the Association rented a corner room where mothers brought their well babies for consultation, a nurse and physician being in attendance. Discovered illness was referred to the family physician of Hospital Out-Patient Department.

The Association, upon day of discharge, receives the names of all infants leaving the Infant Ward of the Rhode Island Hospital, also the names of the mothers leaving the free wards of the Lying-in Hospital. Immediate visits are made and often much disaster averted through carelessness or ignorance.

At the request of the Board of Health, visits are made to the homes of women licensed to board babies and, upon the report of the nurse, the license is continued or withdrawn.

(*d*) AFFILIATION. Affiliation with the Board of Health, Society for Organizing Charity, Prevention for Cruelty to Children, etc., although the Providence District Nursing Association is entirely separate from all Associations or Institutions, but is willing to co-operate for mutual benefit.

Nurses are present at the clinics for children at the Rhode Island Hospital, giving advice or help at the homes, when necessary.

(*e*) STATISTICAL. Cases for the year, 1,709. Visits for the year, 10,607.

(These figures are for the children's work only, not including those for the general and tuberculosis work.)

(*f*) FINANCIAL. Supported by private contributions and an annual donation day.

(*h*) Social. Attempts are made to improve home conditions and assist the family in various ways.

The Board of Health frequently furnishes revised lists of the analysis of milk and mothers are advised as to which milkman to employ.

Rochester, N. Y.

HEALTH BUREAU

We have, as in past summers, continued the instructions of mothers in infant hygiene and feeding, both in the homes and in our Child Welfare Stations. You will notice that we no longer call our stations Milk Stations, but Child Welfare Stations.

We conduct these stations for but two months in the year, selling milk at cost and providing a visiting nurse from the station to give instructions in the homes. By this plan we were able to reach 557 babies, with an infant mortality of 21 from all causes. The territory covered by our work was the city. The work was supported by the city, assisted by two churches, one church supplying a nurse and the other a third of the expenses of a nurse.

I enclose one of the forms used wherein a small attempt was made to improve our birth registration and to get social statistics relating to the wages, rent, number of children in the families visited. With these, and other allied work, we were able last year to increase our birth reports nearly 20 per cent.

CERTIFIED MILK AND BABY HYGIENE COMMITTEE ASSOCIATION OF COLLEGIATE ALUMNAE

San Francisco

The work during the past year has been of two characters:

I. Raising funds and providing certified milk for needy infants.

II. Educational. An attempt to reach a portion of the mothers of the community and teach them the fundamentals of Infant Hygiene.

1. Believing this work should be given a permanent basis, we attempted at the beginning of the year to enlist interested people as regular subscribers to the work and as a consequence now have an assured income annually of $1,400.00. This must be increased if we wish to keep abreast of the work that must be done in this community.

Four groups of children have been provided with the certified milk, the largest group being those babies boarded out by the San Francisco Associated Charities. The results of that piece of work can be briefly stated in the following:

One hundred and sixty-eight babies boarded out by the San Francisco Associated Charities, October 20th, 1910, to October 12th, 1911, 9 died; mortality, 5.3 per cent; average city mortality among infants of same age, 9.5 per cent.

Our Committee pays the difference between the cost of the regular commercial and the certified milk, thus supplying the deficit between the amount allowed by the State and the cost of adequate care.

The second group reached and provided are those infants in the Florence Crittenton Home, who are not nursed—for varying causes—by their mothers. Two quarts daily have been sent by our Committee.

Another group provided has been that little band of Italian babies cared for during the summer months, in a day creche, organized by the Telegraph Hill Settlement, while the mothers worked in the canneries. Two quarts daily have been sent.

The fourth group of infants provided with the certified milk indicates the beginning of a larger piece of work in Alameda county. Twelve scattered babies have been reached, and a visiting nurse, under Dr. Florence Sylvester and Dr. Romilda Paroni, has given individual instructions to the mothers in milk modification and general care. Each baby has been visited several times each week.

We believe this individual instruction a distinct advance in the direction toward ideal conditions, as compared with the delivery of the modified milk to the mother—from some settlement or milk depot.

This has, of course, been the method in use by the San Francisco Associated Charities, since the babies have been boarded in foster homes and provided with certified milk.

2. Education. From the offices of the Board of Health, in both San Francisco and Alameda county, members of the Committee have mailed a circular on "Helpful Hints on Care of the Baby" to the address of every registered birth. We thus reach every mother giving birth to an infant.

Monthly average in San Francisco, 600; monthly average in Alameda county, 250.

Clerical work is done by Committee members, who take list from register of Board of Health.

A course of eight talks on Infant Hygiene was given by two physicians of the Committee at San Francisco Settlement Association. Average attendance, 12 mothers. In spite of the small size of this class, we felt the work well worth our efforts, and plans are now under way for repeating the course and attempting to advertise more extensively.

Educational work done among twelve scattered babies in Alameda county by visiting nurse has been of value in reaching women in their own homes and giving them personal instructions. This work is, of course, only in its beginning, but is a gratifying offshoot of the work of the parent Committee in San Francisco.

SAN FRANCISCO ASSOCIATED CHARITIES

Statistical Report Certified Milk Babies in Foster Homes, October 20th, 1910 to October 12th, 1911

Number of babies cared for from October 20th, 1910, to October 12th, 1911		168
Number of babies placed for adoption	31	
Number of babies returned to parents, relatives or friends	24	
Number of babies transferred	2	
Number of babies off list now (over age limit)	13	
Number of babies died	9	
		79
Number of babies remaining October 12th, 1911		89

Causes of Death:

Pneumonia	2
Bronchial	1
Lobar	1
Gastro enteritis and pneumonia	1
Marasmus	1
Tubercular peritonitis	1
Spinal meningitis	2

Mortality	5.3
City mortality July, 1910, to July, 1911	9.5
Average number babies attending clinic every month	57
Average attendance at clinic	91
Average visits paid per month by visiting nurse	170

Baby clinic every Thursday from 9 to 12 o'clock.

Doctors in attendance: Dr. E. Charles Fleishner, Dr. Anna E. Rude, Dr. Florence M. Holsclaw.

Baby Day at Associated Charities Building, first Friday in the month at 2 P. M.

VISITING NURSE ASSOCIATION

Waterbury, Conn.

(*a*) The Visiting Nurse Association of Waterbury has had for three years one nurse, a Johns Hopkins graduate, to take care of the baby cases (during the summer months two nurses are engaged). This nurse teaches infant hygiene and proper feeding to the mothers in their homes.

(*b*) A milk station has been in operation for four summers at the Settlement House. We have provided on an average of 50 babies with milk during the season.

Hospital care is provided for the sickest babies or the ones whose home conditions are the most hopeless.

(*c*) The nurse who has charge of the babies has an office hour—2 to 3—in the afternoon, where she may be consulted by the mothers in the Settlement House.

(*d*) We are co-operating with the Associated Charities, the Industrial School, Day Nursery and the Anti-Tuberculosis League.

(*e*) The number of babies reached during the past year is 310 and the results have been most gratifying. We have encountered discouragements in the way of mothers being unresponsive, but the majority seemed eager for any knowledge that improved the condition of their babies. It was rather encouraging to hear that mothers who had rejected the advice given them were found to be cheerfully passing on the same advice to neighbors.

We feel the best results obtained have been among the number we succeeded in reaching before the summer came. Those mothers seemed better able to cope with conditions found in the heated term. Waterbury being a small city, our work is not confined to any territory, but is rather general. As there is no hourly nurse interested in this branch of the work, we visit large numbers of families who could afford the expense of a private nurse. These mothers seem as eager for instructions and as sadly in need of information as their poorer neighbors.

The statistics of infant mortality for the summer showed a marked decrease.

(*f*) Our work is supported by private auspices.

(*g*) We endeavor to improve home conditions and to impress families with the importance of a pure milk supply.

THE CHRISTIAN SERVICE LEAGUE OF AMERICA

Wichita, Kansas

During the year ending October 31, 1911:

Total number of babies helped	176
Number of babies probably saved from death	19
Total number of mothers helped with infant children	92

The League receives dependent, abandoned and orphaned children as wards, which accounts for the difference between the number of infants helped and the number of mothers assisted with their own infants.

Eighty-four Mothers' Meetings have been held under the direction of the superintendent of our children's department.

Recently we have interested the co-operation of two of the leading physicians of our city, who will give special direction to this branch of our work during the coming year. We have in our employ five special nurses for the care of infant children.

The Christian Service League has received one hundred and fifty-three babies under one year of age as legal wards of the organization since the beginning of the work in this city four years ago. The death rate among these wards has not yet reached 9 per cent. We feel that our death rate, though it is much less than that of most other institutions, is larger than it should be, and we believe that we will be able to reduce it to less than 7 per cent. The League is making every effort to obtain the proper equipment and facilities for giving the baby a chance to live. The death rate among the baby wards of the Christian Service League is less than one-third the average death rate in the city of Wichita among babies under one year of age. Our four years of work has demonstrated that the death rate among motherless babies need not be excessive. After having made that demonstration, we feel confident that if sufficient effort is put forth, the death rate among babies in their own homes may be greatly reduced.

The Christian Service League is an organization incorporated under the laws of the State of Kansas, having a Board of Trustees, a Board of Directors and an Advisory Council, and supported mainly by membership fees, paid by members of the organization, and in part by contributions.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

MEMBERSHIP LIST 1911

Life Members

Knox, Miss Katherine Bowdoin, Baltimore
Knox, Mrs. J. H. Mason, Jr., Baltimore
Oliver, Mr. Wm. B., Baltimore
White, Mr. Richard J., Baltimore

Affiliated Societies

American Society of Superintendents of Training Schools for Nurses, New York City
Babies' Dispensary and Hospital, Cleveland, Ohio
Babies' Milk Dispensary, Buffalo, New York
Babies' Hospital of Newark, Newark, N. J.
Babies' Dispensary of Englewood, N. J.
Babies' Dispensary Guild, Hamilton, Ontario
Babies' Milk Fund Association, Detroit, Michigan
Babies' Milk Fund Association, Louisville, Kentucky
Baltimore Section, Council of Jewish Women
Bureau of Municipal Research, Philadelphia, Pa.
Certified Milk and Baby Hygiene Committee, California Branch, Association of Collegiate Alumnae
Child Hygiene Department, National Congress of Mothers
Children's Aid Association, Indianapolis, Ind.
Children's Aid Society of Pennsylvania, Philadelphia
Christian Service League of America, Wichita, Kansas
Committee on Childhood Health Exhibits, Boston, Mass.
Committee on Infant Social Service of the Women's Municipal League of Boston, Mass.
Committee on Prevention of Blindness of the New York Association for the Blind, New York City
Connecticut Children's Aid Society, Hartford
Council Milk and Ice Fund, Baltimore, Md.
Department of Health, Baltimore, Md.
Department of Home Economics, New York State College of Agriculture, Cornell
Graduate Nurses' Association, Cleveland, Ohio
Health Bureau, Rochester, N. Y.
Hull House, Chicago, Ill.
Infant Mortality Committee, Associated Charities, Birmingham, Ala.
Infant Welfare Department, Duluth Consistory Scottish Rite Masons, Duluth, Minn.
Infant Welfare Society of Chicago, Ill.
Infant Welfare Society, Minneapolis, Minn.
Instructive District Nursing Association, Columbus, Ohio
Ladies' Literary Club of Salt Lake City, Utah
Maryland Association for Study and Prevention of Infant Mortality, Baltimore
Maryland Society for the Prevention of Blindness, Baltimore
Massachusetts Milk Consumers' Association, Boston
Metropolitan Life Insurance Company, Industrial Department, New York City
Milk and Baby Hygiene Association, Boston, Mass.
Missouri State Nurses' Association, St. Louis
New Orleans Pure Milk Society, La.
New York Diet Kitchen Association, New York City
New York Milk Committee, New York City
North Carolina State Board of Health, Raleigh
Providence District Nursing Association, Providence, R. I.
Pure Milk Committee of the Consumer's League of New Haven, Conn.
Saint Margaret's House and Hospital, Albany, N. Y.
The American Nurses' Association, New York City.

The Diet Kitchen of the Oranges, Orange, N. J.
Utah Congress of Mothers, Salt Lake City
Visiting Nurse Association, Cincinnati
Visiting Nurse Association, Denver, Colorado
Visiting Nurse Association, Milwaukee, Wisconsin
Visiting Nurse Association, Memphis, Tenn.
Visiting Nurse Association, Waterbury, Conn.
Woman's Club, Chicago, Ill.
Woman's Medical Club, Chicago, Ill.
Woman's Club, Colton, California

England

Broadbent, Hon. Benjamin.....Gatesgarth, Lindley, Huddersfield

Scotland

Boyd, Rev. T. Hunter.....70 Bothwell St., Glasgow

Canada

Blackader, Dr. A. D.....236 Mountain St., Montreal
Brent, Miss Louise.....Children's Hospital, College St., Toronto
Clarke, Miss Mary H.....37 Douglas St., Beacon Hill, Victoria, B. C.
McCullough, Dr. J. W. S.....Prov. Board of Health, Toronto, Ontario
MacMurchy, Dr. Helen.....133 East Bloor St., Toronto
Mackenzie, Miss Mary A.....578 Somerset St., Ottawa
Pelletier, Dr. Elzear.....Sec. Board of Health, Province of Quebec, Montreal
The Babies' Dispensary Guild (Affil.)...12 Euclid Ave., Hamilton, Ontario
Wilson, Miss Frederica.....Lady Supt. Winnipeg General Hospital & Training School for Nurses, Winnipeg

Philippine Islands

Pond, Dr. Eleanor J.....The Mary Johnston Hospital, Manila, P. I.

Alabama

Infant Mortality Committee, Associated Charities (Affil.).....Birmingham

California

Ash, Dr. Rachel L.....Galen Bldg., San Francisco
Brown, Dr. Adelaide.....45 Sixteenth Ave., cor. of Lake St., San Francisco
Certified Milk Baby Hygiene Committee, California Branch Assoc. Collegiate Alumnae (Affil.).....Care Mrs. A. E. Graupner, 2009 Jackson St., San Francisco.
Chancellor, Dr. Philip S.....Pasadena
Fleischmer, Dr. E. C.....350 Post St., San Francisco
Franklin, Miss H. Grace.....San Diego, San Diego Co.
Graupner, Mrs. A. E.....2009 Jackson St., San Francisco
Johnson, Dr. P. V. K.....815 Wright & Callender Bldg., Los Angeles
McBride, Dr. J. H.....Pasadena
Moffitt, Dr. Herbert C.....240 Stockton St., San Francisco
Peixotto, Prof. Jessica B.....University of California, Berkeley
Powers, Dr. L. M.....Commissioner of Health, Los Angeles
Willetts, Dr. Emma K.....Galen Bldg., San Francisco
Woman's Club (Affil.).....Colton

Colorado

Gengenbach, Dr. Frank P.....1434 Glenarm Place, Denver
Mayhew, Mrs. D. P.....725 N. Cascade Ave., Colorado Springs
Slocum, Rev. Wm. F.....Colorado Springs
Visiting Nurse Assoc. (Affil.).....1434 Glenarm Place, Denver
Whitney, Dr. H. B.....320 Temple St., Denver

Connecticut

Bartlett, Mrs. C. J.....209 York St., New Haven
Blumer, Dr. George.....64 Turnbull St., New Haven
Carle, Mr. Robert W.....P. O. Drawer D., New Haven
Carmalt, Dr. W. H.....261 St. Ronan St., New Haven
Children's Aid Society (Affil.).....60 Brown-Thomson Bldg., Hartford
Fisher, Prof. Irving.....460 Prospect St., New Haven
Goodenough, Dr. E. W.....44 Leamworth St., Waterbury
Goodrich, Dr. C. A.....5 Haynes St., Hartford
Gregory, Mrs. A. W.....63 Gillett St., Hartford
Hillyer, Mrs. A. R.....91 Elm St., Hartford
Parker, Mr. G. A.....P. O. Box No. 1027, Hartford
Pendleton, Miss Clarissa L.....St. John's Church House, Stamford
Pure Milk Committee of the Consumer's League of New Haven (Affil.).....Miss C. D. Welch, Secy., 301 Prospect St., New Haven
Steele, Dr. H. Merriman.....226 Church St., New Haven
Steiner, Dr. W. R.....4 Trinity St., Hartford
Stowe, Miss Emma L.....Supt. Conn. Training School for Nurses, New Haven Hospital
Visiting Nurse Assoc. (Affil.).....37 Central Ave., Waterbury

District of Columbia

Brown, Miss Elizabeth.....923 H St., N. W., Washington
Gardner, Miss Helen W.....The Portner, Washington
Gwynn, Miss Mary.....1740 N St., N. W., Washington
Keisker, Dr. Laura B.....Sp. Agt. Dept, of Commerce and Labor, Bureau of The Census, Washington
Langworthy, Dr. Charles Ford.....Dept. of Agriculture, Washington
Magruder, Dr. G. Lloyd.....Stoneleigh Court, Washington
Schereschewsky, Dr. J. W.....Senate Annex, Washington
Stoutenburgh, Dr. John A.....116 2nd St., S. E., Washington
Strong, Miss Isabel.....2001 I St., N. W., Washington
Wilbur, Dr. Cressy L.....Bureau of The Census, Washington
Woodward, Dr. Wm. C.....1766 Lanier Place, Washington

Georgia

Boyd, Mrs. W. A.....194 Washington St., Atlanta

Illinois

Abt, Dr. Isaac H.....4326 Vincennes Ave., Chicago
Addams, Miss Jane.....Hull House, Chicago
Ahrens, Miss Minnie H.....157 W. Adams St., Chicago
Aldis, Mrs. Arthur.....Lake Forest
Alexander, W. G.....1604 Chicago Ave., Evanston
Allin, Dr. Frank W.....4206 Monroe St., Chicago
Atkinson, Mrs. Charles.....Lake Forest
Bailey, Mr. Edward P.....Chicago Savings Bank & Trust Co., Chicago
Ball, Mr. Charles B.....Department of Health, Chicago
Becker, Mr. A. G.....Cor. Monroe and La Salle Sts., Chicago
Bell, Mrs. Laird.....31 Scott St., Chicago
Blatt, Dr. Maurice L.....309 East 47th St., Chicago
Blyth, Dr. David R.....23 South Clinton St., Chicago
Bowen, Mrs. Louise de Koven.....1430 Astor St., Chicago
Breckenridge, Miss S. P.....Green Hall, University of Chicago, Chicago
Breeze, Miss Jessie.....3518 Congress St., Chicago
Brockett, Miss Myrn.....818 Ewing St., Chicago
Brown, Dr. Alice B.....748 Oak Ave., Winnetka
Burling, Mrs. Edward.....Winnetka
Casselberry, Mrs. Lillian H.....1830 Calumet Ave., Chicago
Cheney, Dr. Henry W.....1230 East 63rd St., Chicago
Churchill, Mrs. F. S.....1259 N. State St., Chicago
Churchill, Dr. F. S.....1259 N. State St., Chicago
Clarke, Mr. James L.....23 South Clinton St., Chicago
Cotton, Dr. Alfred C.....3218 Jackson Blvd., Chicago
Crerar, Mrs. John.....1901 Prairie Ave., Chicago
Davis, Dr. Effa T.....2314 N. Clark St., Chicago

De Lee, Dr. J. B.....Lake Forest
Dodson, Dr. John M.....5028 Ellis Ave., Chicago
Dunn, Mrs. Morrill.....1109 Venetian Bldg., Chicago
Erb, Mrs. F. O.....125 E. Chestnut St., Chicago
Evans, Dr. W. A.....5815 Drexel Ave., Chicago
Fall, Mrs. Horton, Jr.....103 State St., Chicago
Farwell, Mrs. Fanny D.....1114 Hinman Ave., Evanston
Fielding, Major-General Edward.....The Volunteers of America, 110 South Dearborn St., Chicago
Ford, Mr. Joseph A.....Tribune Bldg., Chicago
Fulmer, Miss Harriet.....5329 Lake Ave., Chicago
Furst, Mr. Edward.....1346 Astor St., Chicago
Gibbs, Mrs. Florence O.....2017 Park Ave., Chicago
Grulee, Dr. Clifford G.....3974 Lake Ave., Chicago
Hall, Dr. Winfield S.....Northwestern University Medical School, Chicago
Hamill, Mrs. R. W.....Clarendon Hills
Hay, Miss Helen Scott.....509 Honore St., Chicago
Hedger, Dr. Caroline.....72 Madison St., Chicago
Heinemann, Dr. P. G.....Bacteriological Laboratory, University of Chicago, Chicago
Helmholz, Dr. Henry F.....1630 Ashland Ave., Evanston
Henderson, Mrs. Charles Richmond.....Chicago
Henderson, Prof. Charles Richmond.....University of Chicago, Chicago
Hess, Dr. J. H.....5514 Indiana Ave., Chicago
Heyworth, Mrs. James O.....Lake Forest
Hibbard, Mr. Wm. G., Jr.....State Street Bridge, Chicago
Hilliard, Miss Helen L.....Glencoe
Hilton, Mr. Henry H.....2301 Prairie Ave., Chicago
Hopkins, Rev. Wm. E.....11949 Eggleston Ave., Chicago
Houghteling, Mrs. James L.....850 Lincoln Park, Chicago
Hughes, Mrs. Frances L.....Lake Forest
Hull House (Affil.).....800 S. Halsted St., Chicago
Infant Welfare Society of Chicago (Affil.).....157 W. Adams St., Chicago
Johnstone, Miss Margaret E.....St. Luke's Hospital, Chicago
Jones, Miss Gwethalyn.....Lake Forest
Jordan, Prof. Edwin O.....University of Chicago, Chicago
Keyes, Mrs. Rollin W.....1217 Judson Ave., Evanston
Kirk, Mrs. Walter.....76 E. Cedar St., Chicago
Koehler, Dr. Gottfried.....Department of Health, Chicago
Lackner, Dr. E.....103 State St., Chicago
Lee, Mrs. John H. S.....Judson Ave., Evanston
Lewis, E. H.....Lewis Institute
Linn, Mrs. Wm. R.....2709 Michigan Ave., Chicago
McBirney, Mrs. Hugh.....Lake Forest
McCormick, Mr. Harold F.....Suite 1212, Chicago Stock Exchange Bldg., Chicago
McCormick, Mrs. Harriet H.....50 E. Huron St., Chicago
McCormick, Mrs. Medill.....1434 Lake Shore Drive, Chicago
McGann, Mrs. Grace F.....Lake Forest
McKinlock, Mrs. George A.....Lake Forest
McLaury, Mrs. C. W.....4801 Greenwood Ave., Chicago
Michael, Dr. May.....4625 Prairie Ave., Chicago
Milligan, Dr. Josephine.....110 W. State St., Jacksonville
Obeig, Miss C. Irene.....Sherman Hospital, Elgin
Palmer, Mrs. Robert F.....2634 Lake View Ave., Chicago
Poole, Mrs. R. H.....Elsinore, Lake Forest
Rew, Mrs. Irwin.....1128 Ridge Ave., Evanston
Rosenwald, Mr. Julius.....Care Sears and Roebuck, Chicago.
Scott, Mrs. Frederick H.....1332 Chicago Ave., Evanston
Scott, Mrs. Robert L.....404 Lake St., Evanston
Shaw, Mrs. Howard Van Doren.....Lake Forest
Small, Prof. S. W.....University of Chicago, Chicago
Stewart, Miss Mary C.....Henrotin Memorial Hospital, Chicago
Taylor, Mr. Graham.....955 Grand Ave., Chicago
Teats, Mrs. Mary E.....544 East 43rd St., Chicago
Teter, Mr. Lucius.....7 W. Madison St., Chicago
Thomson, Miss Helen Mar.....3722 Ward St., Chicago
Thompson, Mrs. Leverett.....Lake Forest
Thurston, Mr. Henry W.....7233 Harvard Ave., Chicago
Towne, Mrs. John D.....1004 Greenwood Blvd., Evanston
Tyson, Mrs. Russell.....20 East Goethe St., Chicago
Vittum, Mrs. Harriet L.....1400 Augusta St., Chicago

Walker, Dr. Samuel.....670 Lincoln Parkway, Chicago
Walsh, Miss Adelaide.....Children's Memorial Hospital, Chicago
Webster, Mrs. Edward H.....1332 Chicago Ave., Evanston
Webster, Dr. George W.....Pres. State Board of Health, Chicago
Woman's Club (Affil.).....Chicago
Woman's Medical Club (Affil.).....Chicago
Woodruff, Dr. Thomas A.....72 Madison St., Chicago
Wynekoop, Dr. A. L. Lindsay.....3406 W. Monroe St., Chicago
Young, Dr. George B.....Commissioner of Health, Chicago
Zimmerman, Mr. W. C.....Steinway Bldg., Chicago

Indiana

Children's Aid Assn. (Affil.).....Baldwin Block, cor. Market & Delaware Sts., Indianapolis
Powell, Dr. Nettie B.....Marion
Rappaport, Mr. L. M.....322 Law Bldg., Indianapolis

Iowa

Child Hygiene Dept., National Congress of Mothers (Affil.).....Care Mrs. Walter S. Brown, 2141 W. Grand Ave., Des Moines.
Seymour, Mr. R. F.....Cedar Falls

Kansas

Christian Service League of America (Affil.).....113 N. Lawrence St., Wichita
Day, Miss Edna D.....Dept. of Home Economics, University of Kansas, Lawrence

Kentucky

Babies' Milk Fund Assn. (Affil.).....215 East Walnut St., Louisville
Barbour, Dr. Philip F.....1221 Gavin Place, Louisville
Barret, Dr. Harvey P.....Care Mr. Wilson, Crescent Hill
Butler, Miss Harriet L.....Hindman, Knott Co.
Shaver, Miss Elizabeth.....215 East Walnut St., Louisville
Smith, Mrs. Letchworth.....Care Louisville Paper Co.
Tuley, Dr. Henry Enos.....111 W. Kentucky St., Louisville

Louisiana

Butterworth, Dr. W. W.....Tulane University of Louisiana, New Orleans
Hart, Mr. W. O.....No. 134 Carondelet St., New Orleans
New Orleans Pure Milk Society (Affil.)..Office of Milk Commission, New Orleans

Maine

Gerrish, Dr. F. H.....675 Congress St., Portland
Webster, Dr. F. P.....Portland
Young, Dr. A. G.....Secy. Maine State Board of Health, Augusta

Maryland

Abel, Mrs. John J.....Charles St. Ext., Baltimore
Abercrombie, Dr. R. T.....Homewood Apts., Baltimore
Amberg, Dr. Samuel.....1220 Linden Ave., Baltimore
Athey, Mrs. C. N.....1902 Eastern Ave., Baltimore
Baltimore City Dept. of Health (Affil.).Baltimore
Baltimore Section, Council of Jewish Women (Affil.).....Mrs. Sidney Landsburg, Treas., 2226 Linden Ave., Baltimore
Barker, Mrs. L. F.....1035 N. Calvert St., Baltimore
Bliss, Mrs. Wm. J. A.....1017 St. Paul St., Baltimore
Bloodgood, Mrs. J. C.....904 N. Charles St., Baltimore
Bonaparte, Mr. Charles J.....216 St. Paul St., Baltimore
Bowdoin, Mrs. W. G.....1106 N. Charles St., Baltimore
Carey, Mrs. A. Morris.....1004 Cathedral St., Baltimore
Carey, Mrs. Francis K.....509 Cathedral St., Baltimore

Carey, Mrs. Thomas K.....827 Park Ave., Baltimore
Cochran, Mr. Wm. F., Jr.....Woodbrook
Cohen, Mr. Mendes.....825 N. Charles St., Baltimore
Cone, Dr. Claribel.....The Marlborough, Baltimore
Corkran, Mrs. B. W.....200 Goodwood Gardens, Roland Park
Council Milk and Ice Fund (Affil.).....Mrs. Isidore Ash, Pres., The Navarre, Baltimore
Dobbin, Mrs. Thomas M.....1308 Bolton St., Baltimore
Dorsey, Mrs. John R.....730 Roland Ave., Baltimore
Ellicott, Mrs. Charles.....Melvale
Ellicott, Mrs. Wm.....714 St. Paul St., Baltimore
Epstein, Mr. Jacob.....2532 Eutaw Place, Baltimore
Finney, Dr. J. M. T.....1300 Eutaw Place, Baltimore
Follis, Dr. R. H.....3 East Read St., Baltimore
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